LV-736EE/836EE/K881/X731/X821/X831
RMT-V145/V145A/V145B

SERVICE MANUAL

East European Model
SLV-736EE/836EE
Saudi Arabian Model
SLV-X731/X821/X831
E Model

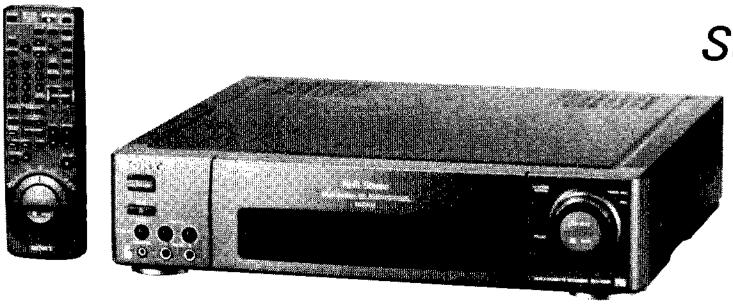


Photo : SLV-K881

- Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT II for MECHANICAL ADJUSTMENTS. (9-972-816-11)

VHS Hi-Fi

SPECIFICATIONS

System

Channel coverage
See page 2.

RF output signal
See page 2.

Frequency (MHz)

	SLV-836EE/K881/X831	SLV-736EE/X731/X821
VL	42 - 167	42 – 153
VH	167 - 470	153 – 470
U	470 – 862	470 – 862

Aerial out
75-ohm asymmetrical aerial socket

Inputs and outputs

LINE IN
VIDEO IN, Phono jack (2)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, Phono jack (2)
Input level: -7.5 dBs
(0 dBs = 0.775 Vrms)
Input impedance: more than 47 kilohms

LINE OUT
VIDEO OUT, Phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, Phono jack (1)
Rated output level: -7.5 dBs
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms

General

Power requirements
110 – 240 V AC, 50/60 Hz

Power consumption
SLV-K881 29 W
SLV-836EE/X831 28 W
SLV-736EE/X821 25 W
SLV-X731 24 W

Operating temperature
5°C to 40°C (41°F to 104°F)

Storage temperature
-20°C to 60°C (-4°F to 140°F)

Dimensions
Approx. 430 × 100 × 376 mm (w/h/d)
(17 × 4 × 14 7/8 inches)
including projecting parts and controls

Weight
SLV-K881
Approx. 6.1 kg
SLV-836EE/X831
Approx. 5.9 kg
SLV-736EE/X731/X821
Approx. 5.7 kg

Supplied accessories

Remote commander (1)
SLV-K881: RMT-V145
SLV-736EE/836EE/X821/X831:
RMT-V145A
SLV-X731: RMT-V145B
R6 (size AA) batteries (2)
Aerial cable (1)
AV cable (1) (Except SLV-X731)
Mains lead (1)
Mains lead plug adaptor (1)
(Except SLV-736EE/836EE)
Microphone (1) (SLV-K881)

Design and specifications are subject to change without notice.

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

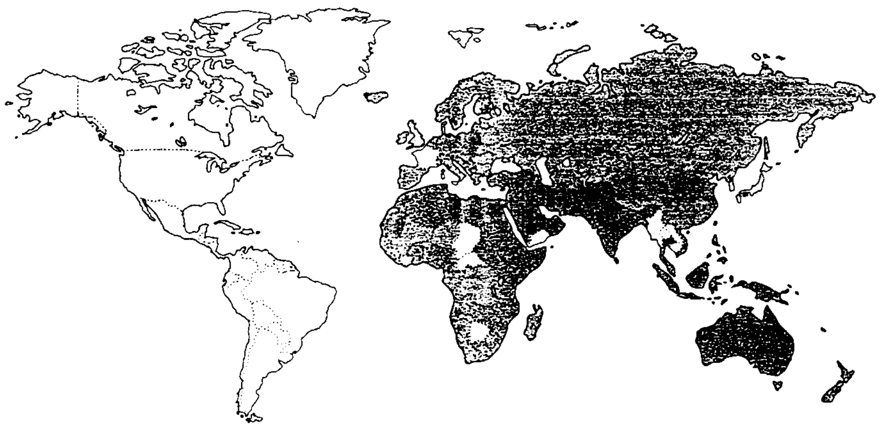
– Continued on next page –

VIDEO CASSETTE RECORDER

SONY®

MICROFILM

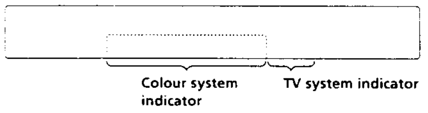
Step 4 Channel setup map and chart



About colour systems

Different countries use different colour systems, which determine various parameters for video playback and recording, among others. Using your VTR in a country that has standardized on a colour system not supported by the VTR may cause problems such as playback without sound, a vertically rolling picture, etc.

Refer to the map above to determine which countries use which colour systems. The SLV-736EE/836EE/K881/X821/X831 are compatible with all existing colour systems, except for the one used in France. The SLV-X731 is compatible with all existing colour systems. If you have made the TV-VTR connections using the aerial sockets, refer to the operating instructions for your TV to correctly set the switches on the rear of the VTR (as described on the following page). This unit displays the colour system and TV system in the VTR display window.



Note

If you have set your VTR to line input without receiving an input signal (or if you haven't made the connections yet), a demonstration is cycled in the display window instead of the current colour system setting.

Channel setup chart

Map pattern	Colour system, TV system	Area	Channels* VL	VH	U	RF channel output Preset	Adjustable	TV SYSTEM K/I/G switch	TV SYSTEM AUTO/M switch***
■	PAL B/G	Western	2 – 4	5 – 12	21 – 69	32	30 – 39	G	N/A
		Europe	S01 – S03**			32	30 – 39		(no effect)
			S1 – S9**	S10 – S41**		32	30 – 39		
			[S1 – S7]	[S8 – S41]					
		Turkey Kuwait U.A.E. Oman, Jordan	2 – 4	5 – 12	21 – 69	32	30 – 39		
		Australia	0 – 5, 5A	6 – 11	28 – 69	32	30 – 39		
		Indonesia	1A, 2, 3	4 – 11	—	32	30 – 39		
■	PAL I	U.K. Hong Kong	—	—	21 – 68	32	30 – 39	I	N/A (no effect)
		Ireland	A – C,	D – J	—	32	30 – 39		
		South Africa	—	4 – 11, 13	21 – 68	32	30 – 39		
■	PAL D/K	China	1 – 5	6 – 12	13 – 57	24	22 – 31	K	N/A (no effect)
■	SECAM B/G	Saudi Arabia Iran Iraq Libya Egypt Morocco Greece Syria	2 – 4	5 – 12	21 – 69	32	30 – 39	G	N/A (no effect)
■	SECAM D/K	East Europe Russia	1 – 5	6 – 12	21 – 60	32	30 – 39	K	N/A (no effect)
	SECAM K1	Zaire Senegal Niger New Caledonia Tahiti The Guyana	—	K4 – K9	—	32	30 – 39	K	N/A (no effect)
□	NTSC 3.58	USA	2 – 6	7 – 13	14 – 69	28 – 29	26 – 38	N/A	ON
			95 – 99**					(no effect)	(M output)
			14 – 22**	23 – 65**	66 – 94**				or
			[14 – 18]	[19 – 65]					
		Japan	1 – 3	4 – 12	13 – 62	27 – 28	25 – 37		OFF
			C13 – 22**	C23 – 63**					(K/I/G output)
			[C13 – 19]	[C20 – 63]					

* VL = VHF low band, VH = VHF high band, U = UHF band

** CATV channels (SLV-836EE/K881/X831), [...] (SLV-736EE/X731/X821)

*** Generally, set the TV SYSTEM AUTO/M switch to ON.

Although the adjustable RF channel output for China, USA, and Japan differ from that of other regions, the procedure for obtaining a clear picture is the same. Turn the RF channel screw with a screwdriver until you obtain a clear picture. (See page **11**.)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

Section Title Page

1. GENERAL

Index to Parts and Controls ········ 1-1
Getting Started ········ 1-2
Basic Operations ········ 1-8
Additional Operations ········ 1-15
Editing ········ 1-20

2. DISASSEMBLY

2-1. Front Panel Assembly and Case ········ 2-1
2-2. Control Switch Block, Cassette Door ········ 2-1
2-3. TU-150 Board (SLV-836EE/K881/X831), KR-24, MJ-63, VR-43 Boards (SLV-K881) ········ 2-2
2-4. MF-246 Board ········ 2-2
2-5. MF-245 Board ········ 2-3
2-6. Cassette Compartment Assembly ········ 2-3
2-7. RV-34, SK-44 Boards and MD Assembly ········ 2-4
2-8. IO-51 Board ········ 2-4
2-9. PT-97 Board ········ 2-5
2-10. MA-202 and HF-34 Boards ········ 2-5
2-11. Internal Views ········ 2-6
2-12. Circuit Boards Location ········ 2-7

3. BLOCK DIAGRAMS

3-1. Overall Block Diagram ········ 3-1
3-2. Video Block Diagram-1 ········ 3-4
3-3. Video Block Diagram-2 ········ 3-7
3-4. Servo, System Control Block Diagram ········ 3-10
3-5. Audio Block Diagram ········ 3-13
3-6. Karaoke Block Diagram (SLV-K881) ········ 3-16
3-7. Tuner Block Diagram ········ 3-19
3-8. Mode Control Block Diagram ········ 3-24
3-9. Power Supply Block Diagram ········ 3-26

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. Frame Schematic Diagram ········ 4-1
4-2. Printed Wiring Boards and Schematic Diagrams ········ 4-8
  RV-34, SK-44 Boards ········ 4-8
  MA-202, MF-245 Boards ········ 4-17
  PT-97 Board ········ 4-26
  MF-246 Board ········ 4-34
  KR-24, MJ-63, VR-43 Boards ········ 4-39
  HF-34 Board ········ 4-45
  IO-51 Board ········ 4-47
  TU-150 Board ········ 4-53
4-3. Semiconductors ········ 4-57

5. REPAIR PARTS LIST

5-1. Exploded Views ········ 5-1
  5-1-1. Front Panel and Cabinet Assemblies ········ 5-1
  5-1-2. Chassis Assembly ········ 5-2
  5-1-3. FL Cassette Compartment Assembly ········ 5-3
  5-1-4. Mechanism Chassis Assembly (1) ········ 5-4
  5-1-5. Mechanism Chassis Assembly (2) ········ 5-5
  5-1-6. Mechanism Chassis Assembly (3) ········ 5-6
5-2. Electrical Parts List ········ 5-7
  Hardware List ········ 5-33

Section Title Page

6. INTERFACE, IC PIN FUNCTION DESCRIPTION

6-1. System Control – Video Block Interface ········ 6-1
6-2. System Control – Servo Peripheral Circuit Interface ········ 6-2
6-3. System Control – Mechanism Block Interface ········ 6-3
6-4. System Control – System Control Peripheral Circuit Interface ········ 6-4
6-5. System Control – Audio Block Interface ········ 6-4
6-6. System Control and RF Modulator – Input Selection Block Interface ········ 6-4
6-7. Servo/System Control Microprocessor Pin Function ········ 6-5
6-8. Timer, Tuner, Mode Control Microprocessor Pin Function ········ 6-6
6-9. Digital Sound Processor Control Microprocessor (SLV-K881) ········ 6-7

7. ADJUSTMENTS

7-1. Mechanical Adjustments ········ 7-1
7-2. Electrical Adjustments ········ 7-1
  2-1. Pre-Adjustment Preparations ········ 7-1
    2-1-1. Instruments to be Used ········ 7-1
    2-1-2. Connection ········ 7-1
    2-1-3. Set-up Adjustment ········ 7-1
    2-1-4. Alignment Tapes ········ 7-1
    2-1-5. Specified I/O Level and Impedance ········ 7-2
    2-1-6. Adjusting Sequence ········ 7-2
  2-2. Power Supply Check ········ 7-2
  2-3. Servo/Video System Adjustments ········ 7-2
    2-3-1. Switching Position Adjustment ········ 7-3
    2-3-2. Sync. AGC Adjustment ········ 7-3
    2-3-3. White Clip Adjustment ········ 7-3
    2-3-4. Recording Chroma Adjustment ········ 7-4
    2-3-5. Playback Level Adjustment ········ 7-4
    2-3-6. Carrier Deviation Adjustment ········ 7-4
    2-3-7. VCO Adjustment ········ 7-5
    2-3-8. SECAM Discrimination Adjustment ········ 7-5
    2-3-9. CCD Video Level Adjustment ········ 7-5
  2-4. Audio System Adjustments ········ 7-5
    2-4-1. Hi-Fi Audio System Adjustment ········ 7-5
    2-4-2. Normal Audio System Adjustment ········ 7-7
  2-5. Tuner System Adjustment ········ 7-7
    2-5-1. Receive Separation Adjustment ········ 7-7
  2-6. Parts Arrangement Diagram for Adjustments ········ 7-8

SERVICE NOTE

1. RETURNING PINCH ROLLER, GUIDE ROLLER AND ELEVATOR CAM TO STOP CONDITION

1) Remove the bottom panel.
2) Turn the worm gear Ⓐ of the cam motor, located at lower of the MD, to the arrow direction Ⓑ by finger.

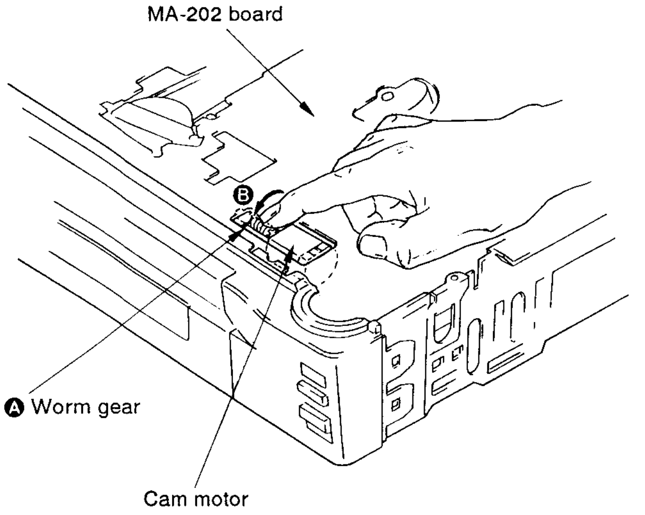

MA-202 board
Ⓑ
Ⓐ Worm gear
Cam motor

Fig. 1.

2. WINDING TAPE TO CASSETTE HALF

Turn the flywheel Ⓐ of the capstan motor to the arrow direction Ⓑ by finger, then the cassette tape will be wound to the cassette half.

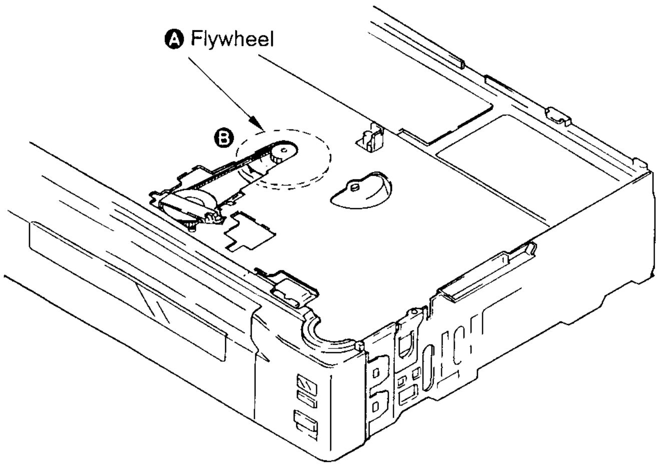


Fig. 2.

3. TAKING OUT CASSETTE WHEN UNIT IS DEFECTIVE WITH CASSETTE IN

1) Remove the upper case.
2) Turn the worm gear Ⓐ of the FL cassette compartment motor to the arrow direction Ⓑ by finger.

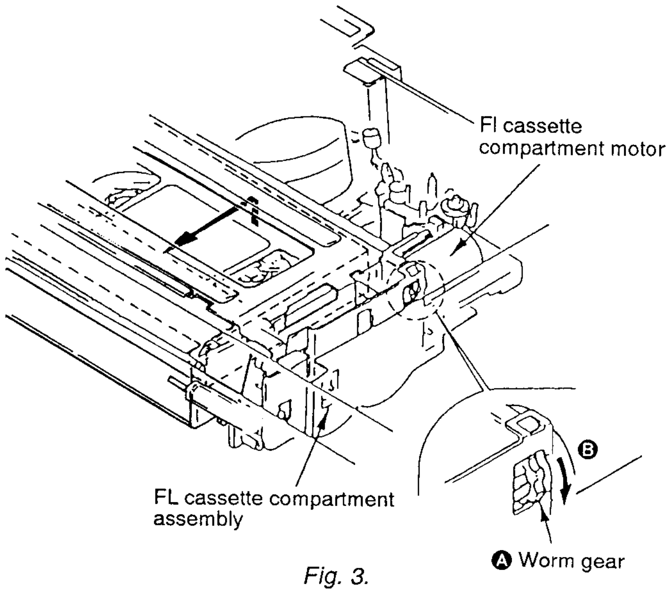

Fl cassette compartment motor
FL cassette compartment assembly
Ⓑ
Ⓐ Worm gear

Fig. 3.

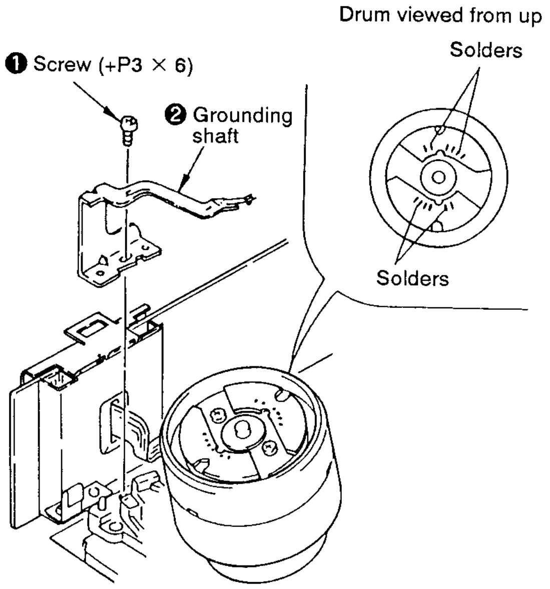
Note: When performing 1. to 3., be careful not to clog and damage the cassette tape.

4. UPPER DRUM REPLACEMENT

4-1. Removal of Upper Drum

1) Remove the screw ❶ (+P3 × 6) and take out the grounding shaft ❷. (See Fig. 4.)
2) Completely remove the rotary upper drum board and desolder the soldering indicated by the arrows.
3) Remove two screw ❸ (PSW3 × 8) and take out the rotary upper drum in the arrow direction Ⓐ. (See Fig. 5.)
   If it difficult, remove by shaking the rotary upper drum gradually.

Note: If the drum can not be removed, check wheater the solders have been removed or not again.

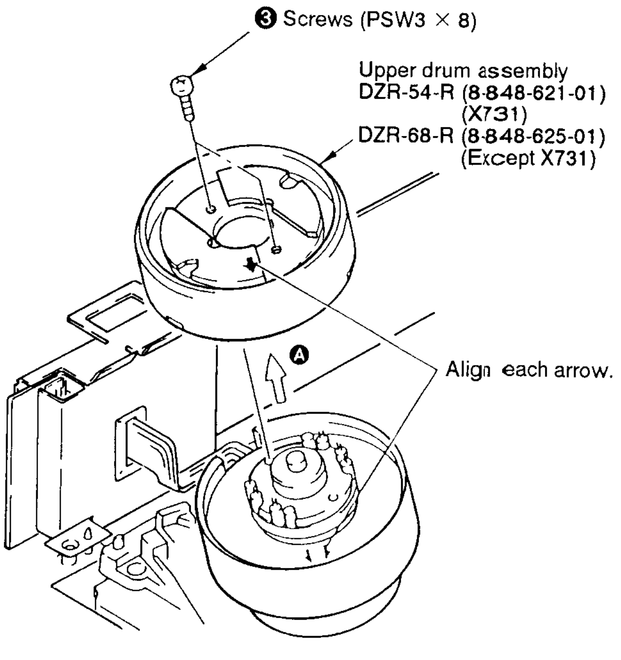


Drum viewed from up
Solders
❶ Screw (+P3 × 6)
❷ Grounding shaft
Solders

Fig. 4.

4-2. Mounting Upper Drum

1) When inserting the rotary drum into the lower drum, be careful not to blur the contacting surface with fingerprint or the like.
2) Mount the rotaly upper drum board by aligning marked ➡ with marked ⇛ of rotary transformer board (lower drum) so that the screw holes of both upper and lower drums match. (See Fig. 5.)
3) If it is difficult, mount the upper drum by shaking it gradually.
   Note: Be careful not to damage the head. Make sure that the upper drum is tightly inserted.
4) Tighten two screws ❸ (PSW3 × 8). (See Fig. 5.)
   Note: Temporary tighten two screws. After making sure that upper drum is tightly inserted, tighten the screws.
5) Solder points on the board of the rotary upper drum.
6) Fix the grounding shaft ❷ using the screw ❶ (+P3 × 6) so that the protrusin of grounding shaft end contacts the center of the drum shaft.
   Note: When attaching the grounding shaft ❷, be careful not to apply force to the spring section of it.



❸ Screws (PSW3 × 8)
Upper drum assembly
DZR-54-R (8-848-621-01)
(X731)
DZR-68-R (8-848-625-01)
(Except X731)
Ⓐ
Align each arrow.

Fig. 5.

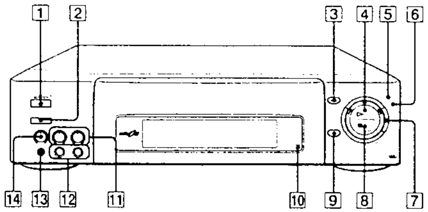
This section is extracted from SLV-K881 instruction manual.

SECTION 1
GENERAL

Index to parts and controls

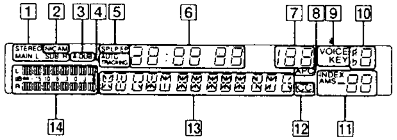
Refer to the pages indicated in ( ) for details.

Front panel, with cover closed



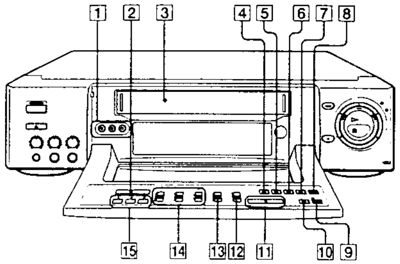
1 ON/STANDBY switch/indicator
2 ≜ EJECT button (20)
3 ◀◀◀ HI-SPEED REW button (20)
4 ▷ PLAY button (20)
5 TIMER REC (recording) indicator (23)
6 REC (recording indicator)
7 DUAL MODE SHUTTLE ring (20)
8 ■ STOP button (20)
9 ❚❚ PAUSE button (20)
10 Remote sensor (6)
11 MIC VOL 1/2 controls (36)
12 MIC IN 1/2 jacks (40)
13 CONTROL jack (40)
14 ECHO control (36)

Display window



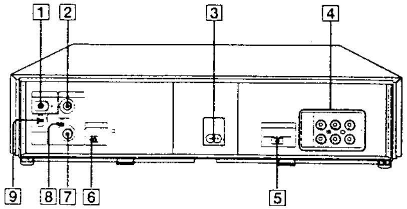
1 Sound indicators (26)
2 NICAM indicator (25)
3 A-DUB (audio dubbing) indicator (45)
4 AUTO TRACKING indicator (34)
5 Tape speed indicators (23)
6 Linear time counter/Clock (15, 20)
7 Line/Programme position indicator
8 APC indicator (34)
9 VOICE/KEY indicator (40)
10 Key indicators (40)
11 INDEX SEARCH or KARAOKE PROGRAM indicator (35)
12 Tape indicator
13 Colour system, TV system indicator (8)
14 Audio channel/sound level indicator (21)

Front panel, with cover opened



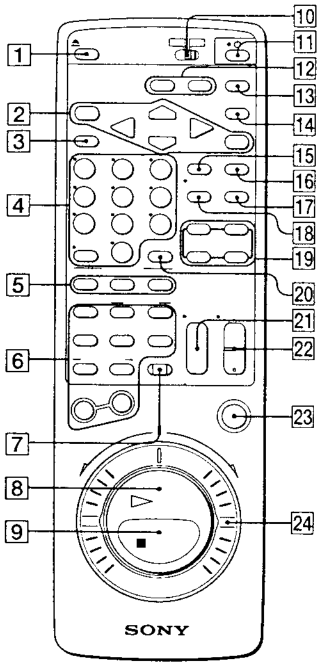
1 LINE IN 2 jacks (43)
2 KEY/VOICE button (40)
3 Tape compartment
4 AUDIO DUB button (45)
5 APC button (34)
6 TAPE SPEED button (22)
7 QUICK TIMER button (23)
8 TIMER REC ON/OFF button (23)
9 ● REC button (22)
10 INPUT SELECT button (11)
11 PROGRAM buttons (11)
12 PICTURE switch (34, 44)
13 COLOR SYSTEM switch (19)
14 KARAOKE switches
    SURROUND switch (39)
    MODE switch (39)
    ON/OFF switch (37)
15 KEY CONTROL (♭/♮/♯) buttons (40)

Rear panel



1 RF CHANNEL screw (11)
2 AERIAL OUT connector (7)
3 AC IN connector (7)
4 AV (AUDIO/VIDEO) connector (7)
5 NTSC PB switch (10)
6 TV SYSTEM AUTO M ON/OFF switch (10)
7 AERIAL IN connector (7)
8 LOCAL/DX switch (18)
9 TV SYSTEM K/I/G selector (10)

Remote commander



1 ≙ EJECT button (20)

2 Menu operation buttons (12)
  MENU button
  CURSOR ↑/↓/←/→ buttons
  EXECUTE button

3 DISPLAY button (20)

4 Programme number buttons and -/– button (22)

5 TRACKING buttons (34)
  ▼/▲ NORMAL/SLOW (STILL ADJUST) buttons
  AUTO/MANUAL button

6 Tape transport buttons
  I► SLOW buttons (32)
  REPLAY button (33)
  ◄II/II► FRAME buttons (32)
  ◄◄◄HI-SPEEDREWIND button (20)
  I◄◄/►►I INDEX SEARCH buttons (35)
  ⏪/⏩ SEARCH buttons (20)

7 ● REC (recording) button (22)

8 ▷ PLAY button (20)

9 ■ STOP button (20)

10 TV/VTR remote control switch (6)

11 ⏻ (on/standby) button

12 TIMER REC buttons
  CLEAR button (30)
  ON/OFF button (23)

13 TV/VTR button

14 COUNTER RESET button (21)

15 TAPE SPEED button (22)

16 QUICK TIMER button (23)

17 AUDIO DUB button (45)

18 AUDIO MONITOR button (21)

19 KARAOKE buttons (40)
  KEY/VOICE button
  ♮ (standard) button
  ♭ (flat) button
  ♯ (sharp) button

20 INPUT SELECT button (11)

21 VOL (volume) button

22 PROG (programme) button (11)

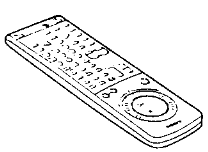
23 II PAUSE button (20)

24 DUAL MODE SHUTTLE ring (20)

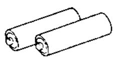
Step 1 Unpacking

Check that you have the following items:

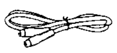
- **Remote commander**



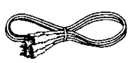
- **R6 (size AA) batteries**



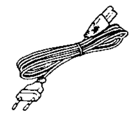
- **Aerial cable**



- **Audio/video (AV) cable**

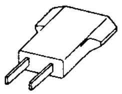


- **Mains lead**



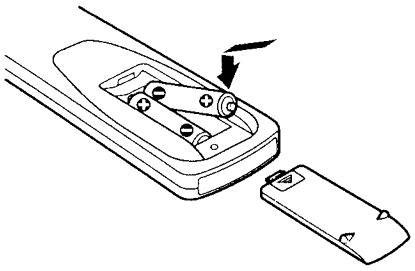
- **Microphone**

- **Mains plug adapter**



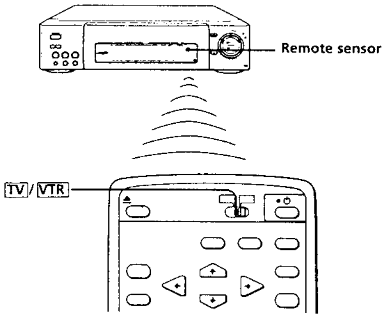
Step 2 Setting up the remote commander

Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.



Using the remote commander

You can use this remote commander to operate this VTR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your TV. Certain Sony TV models may not allow you to use the -/-- (ten's digit) button to select TV channels.

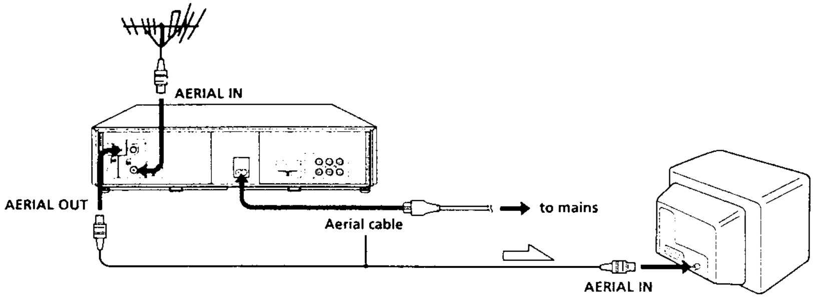


To operate	Set TV/VTR to
the VTR	VTR and point at the remote sensor on the VTR
a Sony TV	TV and point at the remote sensor on the TV

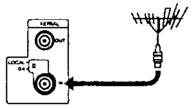
Notes

- With normal use, the batteries should last for approximately three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

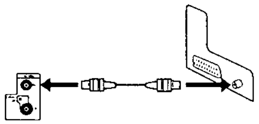
Step 3 Connecting the VTR



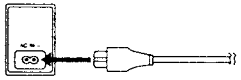
1 **Disconnect the aerial input cable from your TV and connect it to AERIAL IN of the VTR.**



2 **Connect AERIAL OUT of the VTR and the aerial input of your TV using the supplied aerial cable.**

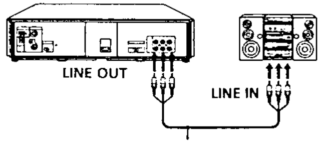


3 **Connect AC IN of the VTR and the mains supply using the mains lead.**
You've completed the basic hookup to watch and record TV programmes.



Additional connections

You can improve sound quality by connecting to a stereo system as shown on the right.



Audio/video (AV) cable

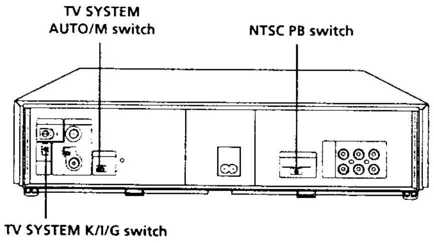
Setting the NTSC PB and TV SYSTEM switches to match your TV system

To view the on-screen menus when using a TV compatible with the PAL, SECAM, or MESECAM system, set the NTSC PB switch to ON PAL TV.
For your TV to receive the correct signal from your VTR, you must set the TV SYSTEM K/I/G output selector on the rear of the VTR correctly. Refer to page **9** to make settings that match the TV system in your area. If the TV SYSTEM K/I/G output selector is set to the wrong position, a rustling sound or no sound at all is heard.

When using a TV compatible with the NTSC system, set the NTSC PB switch to NTSC 3.58. To play back and record tapes using the NTSC 3.58 system, set the TV SYSTEM AUTO/M switch to ON. The NTSC 3.58 signals are then output using the NTSC (M) system. If the TV SYSTEM AUTO/M switch is set to OFF, the NTSC 3.58 signals are output using the system selected with the TV SYSTEM K/I/G output selector.

Set the NTSC PB switch according to the type of TV you have.

Your type of TV	Set the NTSC PB switch to
PAL-compatible TV system	ON PAL TV
NTSC 4.43-compatible TV system	NTSC 4.43
NTSC 3.58-compatible TV system	NTSC 3.58

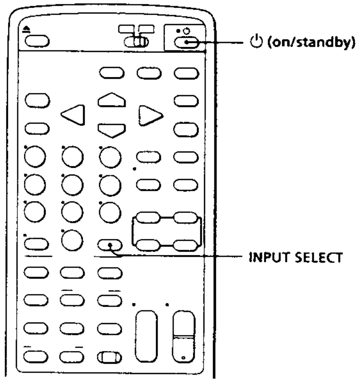


Notes
- When inputting a video signal (via either playback, line input or tuner), the on-screen menus appear regardless of the NTSC PB switch setting.
- If you are not sure of the colour system of your TV, refer to the map on page **8** and the chart on page **9**.
- If your TV is compatible with the SECAM system, the on-screen menus may be displayed in black-and-white.

Tip
- You can play back tapes recorded with the NTSC colour system on monitors as long as the NTSC PB switch is set accordingly.

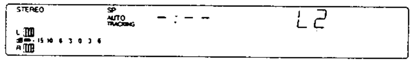
Step 5 Tuning the TV to your VTR

If you have connected the VTR to your TV using the AV (audio/video) cable, skip this step.



1 **Press ⏻ (on/standby) to turn on the VTR.**

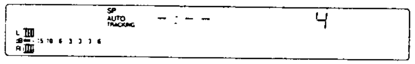
2 INPUT SELECT **Press INPUT SELECT until "L2" appears in the display window.**



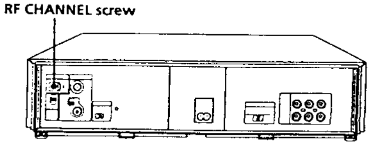
3 **Turn on your TV and select a programme position for video playback.**

4 **Tune the TV within the adjustable RF channel output range so that a grey screen appears on the TV screen (see page 9).**
Refer to your TV manual for tuning instructions.
You have now tuned your TV to the VTR. Whenever you play a tape, set the TV to the programme position selected in step **3** above.

5 INPUT SELECT **Press INPUT SELECT until "L2" disappears and a programme number appears instead.**

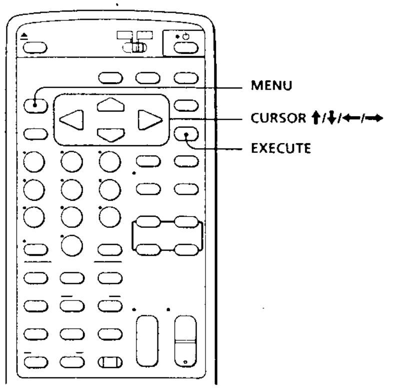


To obtain a clear grey screen
The grey screen may not appear clearly in step **4** above. In this case, turn the RF CHANNEL screw at the rear of the VTR with a screwdriver, to a position where the TV clearly displays a grey screen.



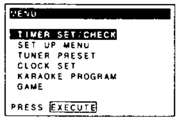
Step 6 Selecting the language

If you prefer Chinese to English, you can change the on-screen language.



1 MENU

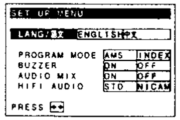
Press MENU.
The following menu appears on the TV screen.



```
MENU

TIMER SET/CHECK
SET UP MENU
TUNER PRESET
CLOCK SET
KARAOKE PROGRAM
GAME

PRESS EXECUTE
```

2 CURSOR ↑ ↓ ← →, EXECUTE

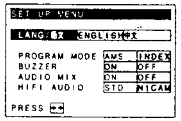
Press CURSOR ↑/↓ to move the cursor (▮) to SET UP MENU, then press EXECUTE.
The SET UP MENU appears on the TV screen.



```
SET UP MENU

LANG/中文    ENGLISH中文

PROGRAM MODE  AMS  INDEX
BUZZER        ON   OFF
AUDIO MIX     ON   OFF
HIFI AUDIO    STD  NICAM

PRESS ←→
```

3 CURSOR ↑ ↓ ← →

Press CURSOR ↑/↓ to move the cursor (▮) to LANG/中文.



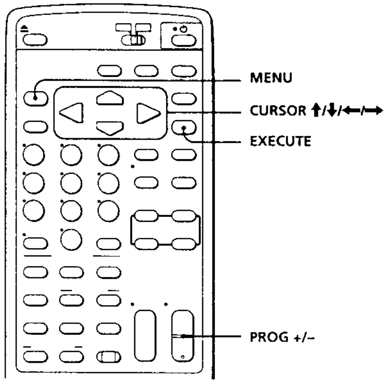
```
SET UP MENU

LANG/中文    ENGLISH中文

PROGRAM MODE  AMS  INDEX
BUZZER        ON   OFF
AUDIO MIX     ON   OFF
HIFI AUDIO    STD  NICAM

PRESS ←→
```

4 CURSOR ↑ ↓ ← →, EXECUTE

Press CURSOR ←/→ to select ENGLISH or 中文, then press EXECUTE.

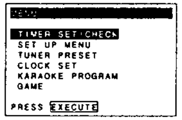
Step 7 Tuning the VTR to TV channels

Now you can set your VTR to receive broadcast channels using the on-screen display.



1 MENU

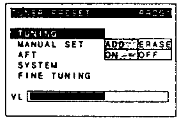
Press MENU.
The following menu appears on the TV screen.



```
MENU

TIMER SET/CHECK
SET UP MENU
TUNER PRESET
CLOCK SET
KARAOKE PROGRAM
GAME

PRESS EXECUTE
```

2 CURSOR ↑ ↓ ← →, EXECUTE

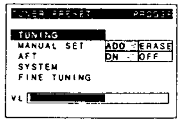
Press CURSOR ↑/↓ to move the cursor (▮) to TUNER PRESET, then press EXECUTE.



```
TUNER PRESET          PROG1

TUNING
MANUAL SET        ADD   ERASE
AFT               ON    OFF
SYSTEM
FINE TUNING

VL
```

3 •PROG + –

Press PROG +/– to select the programme position.
Press until the desired programme position number appears on the TV screen.



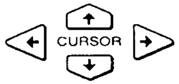
```
TUNER PRESET          PROG[illegible]

TUNING
MANUAL SET        ADD   ERASE
AFT               ON    OFF
SYSTEM
FINE TUNING

VL
```

4 CURSOR ↑ ↓ ← →

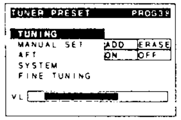
Press CURSOR ↑/↓ to move the cursor (▮) to TUNING.
The tuning bar appears on the TV screen.

(continued)

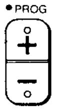
5



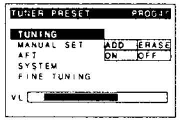
Press CURSOR ←/→ to start tuning.
The VTR starts searching for a channel. Press CURSOR → to scan in the order VL → VH → U. To reverse the scanning order, press CURSOR ←.
For details on channels, see the chart on page **9**.
If you live in an area that receives both PAL and NTSC broadcasts, the screen may appear distorted for a short moment when the VTR starts tuning in the other colour system.
When the VTR finds a channel, its playback picture is displayed on the TV screen for five seconds. If you do not want to allocate this channel to the selected programme position, press CURSOR ←/→ to keep scanning. When you find the desired channel, proceed to step **6**.


TUNER PRESET PROG39
TUNING
MANUAL SET
AFT
SYSTEM
FINE TUNING
ADD
ERASE
ON
OFF
VL

6



Press PROG +/–.
This allocates the channel to the selected programme position. Select a new programme position, and repeat steps **4** to **7** to allocate another channel.

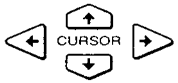

TUNER PRESET PROG4
TUNING
MANUAL SET
AFT
SYSTEM
FINE TUNING
ADD
ERASE
ON
OFF
VL

7

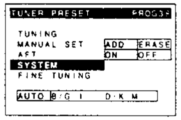
Press EXECUTE to finish the tuning session.

If a rustling sound or no sound at all is heard during playback

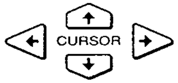
1



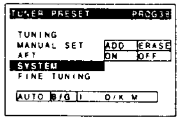
Repeat steps 1 and 2 on page 13, then press CURSOR ↑/↓ to move the cursor (▮) to SYSTEM.
The supported TV systems are displayed on the TV screen, and the default setting is AUTO. Under certain conditions you may have to enter which TV system is being used. If you do not select the correct TV system, a rustling sound or no sound at all is heard during playback.


TUNER PRESET PROG3
TUNING
MANUAL SET
AFT
SYSTEM
FINE TUNING
ADD
ERASE
ON
OFF
AUTO
B/G I D/K M

2

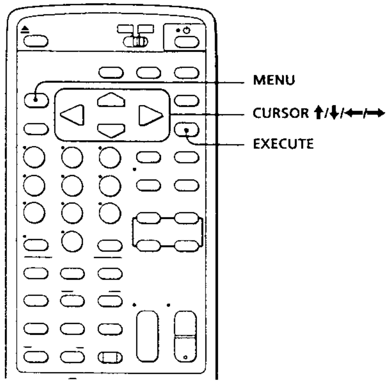


Press CURSOR ←/→ to highlight the TV systems until you've selected one that lets you hear the sound on the audio track. Then press EXECUTE.
When you press EXECUTE, the TV system setting is reset to AUTO.

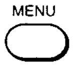

TUNER PRESET PROG3
TUNING
MANUAL SET
AFT
SYSTEM
FINE TUNING
ADD
ERASE
ON
OFF
AUTO
B/G I D/K M

Step 8 Setting the clock

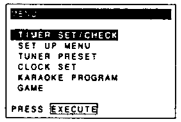
You must set the time and date on the remote commander to be able to use the timer recording features properly.


MENU
CURSOR ↑/↓/←/→
EXECUTE

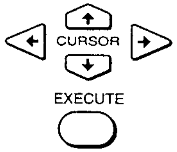
1



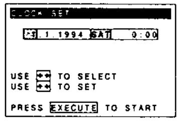
Press MENU.
The main MENU appears on the TV screen.


MENU
TIMER SET/CHECK
SET UP MENU
TUNER PRESET
CLOCK SET
KARAOKE PROGRAM
GAME
PRESS EXECUTE

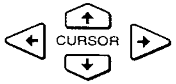
2


CURSOR
EXECUTE

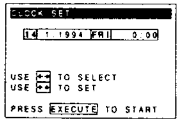
Press CURSOR ↑/↓ to move the cursor (▮) to CLOCK SET, then press EXECUTE.
The CLOCK SET menu appears on the TV screen, and the day is highlighted.


CLOCK SET
.1.1994 SAT 0:00
USE ↑↓ TO SELECT
USE ←→ TO SET
PRESS EXECUTE TO START

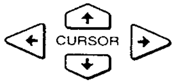
3



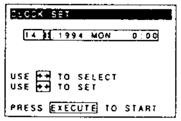
Set the day using CURSOR ↑/↓.
The day of the week is set automatically.


CLOCK SET
14 1.1994 FRI 0:00
USE ↑↓ TO SELECT
USE ←→ TO SET
PRESS EXECUTE TO START

4



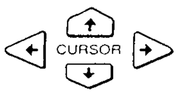
Press CURSOR → to highlight the month. Set the month using CURSOR ↑/↓.


CLOCK SET
14 1.1994 MON 0:00
USE ↑↓ TO SELECT
USE ←→ TO SET
PRESS EXECUTE TO START

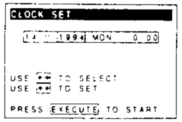
(continued)

Step 8 Setting the clock (continued)

5

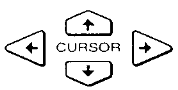


Press CURSOR → to highlight the year.
Set the year using CURSOR ↑/↓.

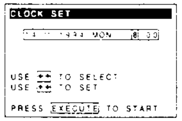


```
CLOCK SET
14 11 1994 MON  0 00
USE ←→ TO SELECT
USE ↑↓ TO SET
PRESS EXECUTE TO START
```

6

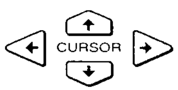


Press CURSOR → to highlight the hour.
Set the hour using CURSOR ↑/↓.

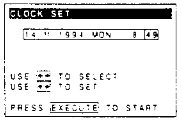


```
CLOCK SET
14 11 1994 MON  8 00
USE ←→ TO SELECT
USE ↑↓ TO SET
PRESS EXECUTE TO START
```

7



Press CURSOR → to highlight the minutes.
Set the minutes using CURSOR ↑/↓.



```
CLOCK SET
14 11 1994 MON  8 49
USE ←→ TO SELECT
USE ↑↓ TO SET
PRESS EXECUTE TO START
```

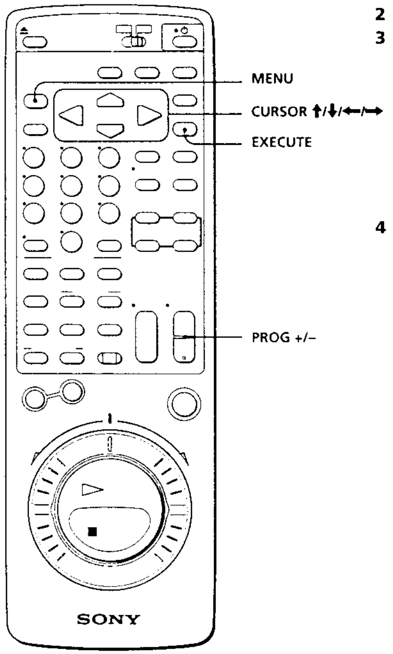
8

Press EXECUTE to start the clock.

Note

- The menu disappears automatically if you don't proceed for more than one minute.

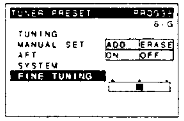
Additional tuning instructions



If the picture is not clear

Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture is not clear, you may also use the manual tuning function.

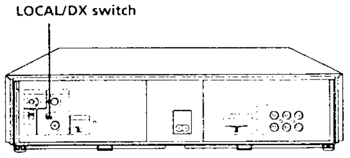
1 Press PROG +/– to select the programme number for which you cannot obtain a clear picture.
2 Press MENU, then select TUNER PRESET and press EXECUTE.
3 Select FINE TUNING. The fine tuning meter appears.



```
TUNER PRESET        PROG33
                       B·G
TUNING
MANUAL SET     ADD   ERASE
AFT            ON    OFF
SYSTEM
FINE TUNING
```

4 Press CURSOR ←/→ to get a clearer picture, then press EXECUTE. Note that the AFT (Auto Fine Tuning) setting switches to OFF.

Additional tuning instructions (continued)



If the TV signal is too strong

Set the LOCAL/DX switch on the rear of the VTR to LOCAL.

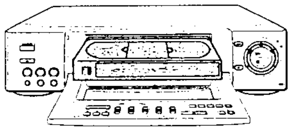
Disabling unwanted programme positions

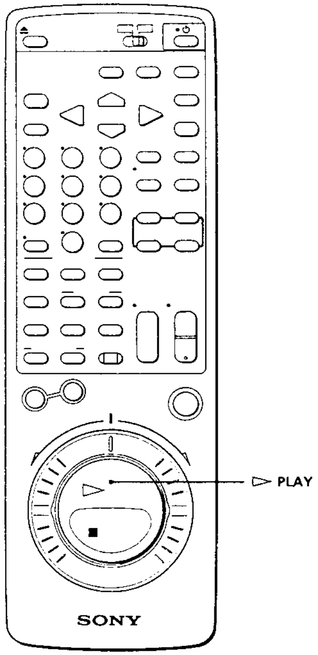
After tuning the TV channels, you can disable unused programme positions. Positions that are disabled will be skipped later when you press the PROG +/– buttons.

1 Press MENU, then select TUNER PRESET and press EXECUTE.
2 Press CURSOR ↑/↓ to move the cursor (▮) to MANUAL SET.
3 Press CURSOR ←/→ to highlight ERASE.
4 Press PROG +/– until the programme position you want to disable appears beside "PROG" on the TV screen.
5 Press EXECUTE.

Basic Operations

Playing a tape





This section shows you how to play back a video tape.
This VTR automatically detects the tape speed (SP or LP for PAL system video tapes and SP or EP for NTSC system video tapes) with which a video cassette was recorded. If you insert a cassette with its safety tab removed, playback starts automatically.

1 **Turn on your TV and tune in to the VTR:**
- If the TV is connected to the VTR using the AV (audio/video) cable, set the TV to video input.
- If the TV is connected to the VTR using only the aerial cable, set the TV to the programme position for the VTR.

2 **Open the drop down panel and insert a tape.**
The VTR turns on automatically. The tape starts playing automatically if its safety tab has been removed. (See page **26**.)

3 **Set the COLOR SYSTEM switch on the VTR to match the colour system of the tape to be played back.**
Normally this switch should be set to AUTO. If streaks appear when playing back a video tape, select the colour system format that matches the format the video tape was recorded with to obtain a better picture. After you are finished, return the COLOR SYSTEM switch to the AUTO position.

For SLV-736EE/836EE/K881/X821/X831

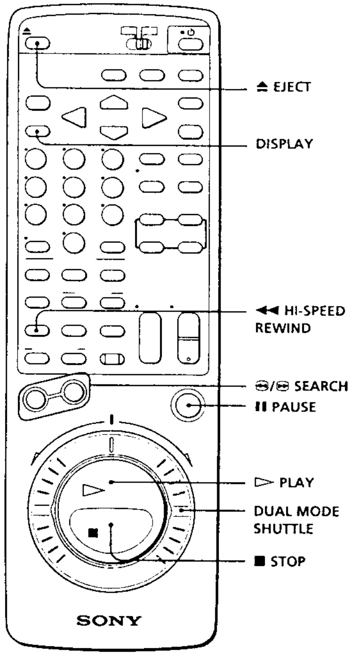
Colour system	Switch position	The display indicator shows
PAL, MESECAM	PAL/MESECAM	"PAL" or "MESECAM"
NTSC	NTSC	"NTSC"

For SLV-X731

Colour system	Switch position	The display indicator shows
PAL, MESECAM	PAL/MESECAM	"PAL" or "MESECAM"
SECAM	SECAM	"SECAM"
NTSC	NTSC	"NTSC"

4 **Set the NTSC PB switch on the rear of the VTR to match the TV system you are using.**
See page **10** for details.

5 **Press ▷ PLAY to start playing.**
When the tape reaches the end, the VTR automatically rewinds it to the beginning. (The power remains on.)


≙ EJECT
DISPLAY
◀◀ HI-SPEED REWIND
⊖/⊕ SEARCH
II PAUSE
▷ PLAY
DUAL MODE SHUTTLE
■ STOP
SONY

Tip

- For further information on searching and playback functions, see "Playing/ searching at various speeds" on page **32**.

Notes

- When a tape is reinserted, the counter returns to "0H00M00S."
- The counter will not work on tape portions with no recording.
- The audio output, tape operation mode, and tape speed are displayed on-screen when you adjust these settings.

When you play back NTSC-recorded tapes

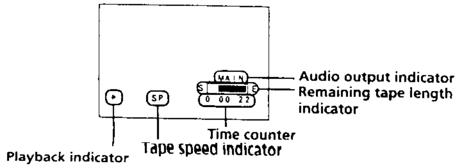
- One of the special features of this VTR is compatibility with the PAL, MESECAM, and NTSC colour systems. Because of this, the remaining tape length may not appear when recording or playing back NTSC broadcasts, but only when you rewind or fast-forward the tape. Look at the cassette to see how much tape remains when recording.
- Depending on the TV you are using, any of the following may occur:
  - the picture becomes black and white
  - the picture shakes
  - no picture appears on the screen
  - black streaks appear horizontally on the screen
  - the colour density increases or decreases
  - the audio becomes normal audio and noise appears in the LP and EP modes.
- If a tape has portions recorded in both the PAL and NTSC video systems, the tape counter reading will not be correct. This discrepancy is due to the difference between the counting cycles of the two video systems.
- You can edit NTSC-recorded tapes onto another VTR, unless the NTSC PB switch on the rear of the VTR is set to ON PAL TV. (See page **10**.)

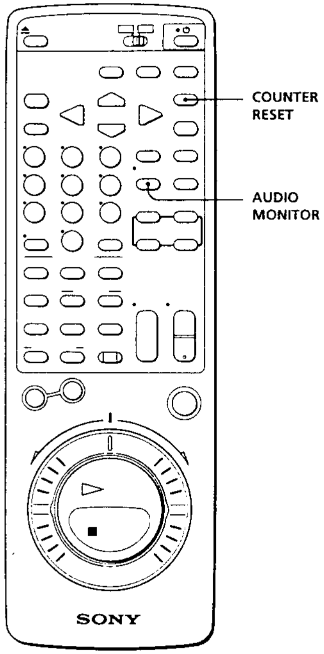
Additional tasks

To	Press
Stop play	■ STOP
Pause play	II PAUSE
Resume play after pause	II PAUSE or ▷ PLAY
Search forward	Turn the DUAL MODE SHUTTLE (DMS) ring to ⊕ during playback
Search backward	Turn the DMS ring to ⊖ during playback
Fast-forward the tape	Turn the DMS ring to ▶▶ FF during stop
Rewind the tape	Turn the DMS ring to ◀◀ REW during stop
Rewind the tape at high speed	◀◀◀ HI-SPEED REWIND
Eject the tape	≙ EJECT

Displaying the remaining tape length and time counter

Press DISPLAY to turn the display on or off.


Audio output indicator
Remaining tape length indicator
Time counter
Tape speed indicator
Playback indicator


COUNTER RESET
AUDIO MONITOR
SONY

Notes

- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.
- To play a tape in stereo, you must use a LINE or AUDIO OUT connection.
- If AUDIO MIX in the SET UP MENU is set to ON, the AUDIO MONITOR button doesn't work.

Using the time counter

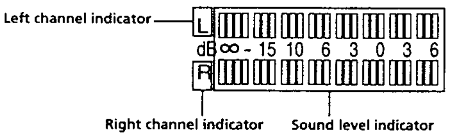
At the point on a tape that you want to find later, press COUNTER RESET to reset the counter to "0H00M00S." When you rewind or advance the tape to this point, refer to the counter.

Playing stereo and bilingual programmes

Press AUDIO MONITOR to select the desired sound. Each press of the button changes the display on the VTR and TV screen.

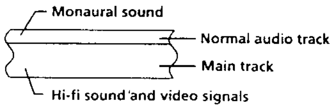
To listen to a		Press AUDIO MONITOR until	
Stereo tape	**Bilingual tape**	**The TV screen shows**	**The display window indicator shows**
Stereo	Main and sub sounds	"STEREO"	"STEREO"
Left channel	Main sound	"LCH"	"MAIN/L"
Right channel	Sub sound	"RCH"	"SUB/R"
Standard sound (monaural)	Standard sound	No indication	No indication

Audio channel and sound level display window

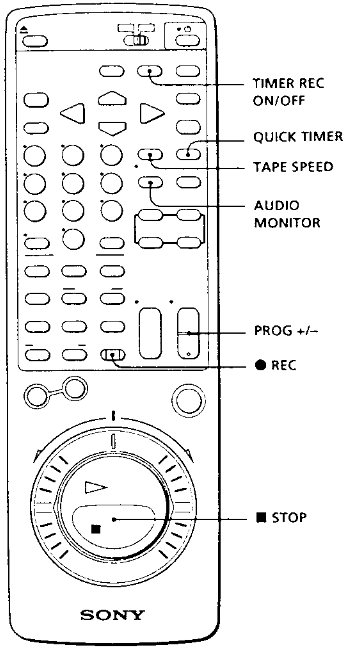

Left channel indicator
L
dB ∞ - 15 10 6 3 0 3 6
R
Right channel indicator
Sound level indicator

How sound is recorded on a video tape

This VTR records sound onto two different tracks. High-fidelity sound (usually stereo) is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.


Monaural sound
Normal audio track
Main track
Hi-fi sound and video signals

Recording TV programmes



Note

- If you insert a tape with its safety tab removed, the VTR starts playing. To record on this tape, cover the tab hole.

Tip

- To select programme positions, you can also use the number buttons on the remote commander. For two-digit numbers, press the -/-- (ten's digit) button followed by the number buttons.

This section shows you how to record TV programmes in the most basic way: manual recording. With manual recording, you start the VTR recording when the programme begins, then stop it when the programme ends. The VTR also provides the following ways of recording:

- Manually start recording, then stop it automatically—"Recording using the quick timer" (page **23**)
- Automatically start and stop recording—"Recording TV programmes using the timer" (page **27**)

1 Turn on your TV and tune in to the VTR:

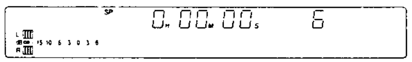
- If the TV is connected to the VTR using the AV (audio/video) cable, set the TV to video input.
- If the TV is connected to the VTR using only the aerial cable, set the TV to the programme position for the VTR.

2 Open the drop down panel and insert a tape with its safety tab in place.

3 Select the desired programme position by pressing PROG +/–.

4 Select the tape speed (SP, LP, or EP) by pressing TAPE SPEED.

See "To select tape speeds" on the next page.



5 Start recording by pressing the ● REC button.

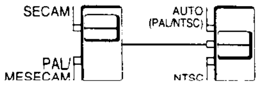
When the tape reaches the end, the VTR automatically rewinds it to the beginning.

To stop recording

Press ■ STOP.

Recording SECAM and MESECAM broadcasts

You can record both SECAM and MESECAM broadcasts with the SLV-X731. Set the COLOUR SYSTEM switch accordingly during recording and playback.



(SLV-X731 only)

When using the SLV-736EE/836EE/K881/X821/X831, SECAM broadcasts will be recorded with the MESECAM colour system.

Tips

- To cut out an unwanted scene while recording, press **II** PAUSE, turn the DUAL MODE SHUTTLE ring on the VTR to rewind the tape to the beginning of the unwanted scene, then press **II** PAUSE to resume recording.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on.

Notes

- If you've inserted a tape with its safety tab removed, the VTR ejects it when you press the ● REC button.
- Tapes recorded in EP mode (NTSC system) will not reproduce hi-fi sound when played back.

Notes

- The VTR automatically selects either the NTSC, PAL, or MESECAM colour system when recording TV broadcasts. For correct recording, take note of the following:
  - Before recording (while in the stop or recording pause mode), make sure that the VTR is receiving the incoming signal.
  - While recording, the VTR cannot distinguish different signals, so if the original is changed while recording, the picture's colour may disappear or other problems may occur.

To select tape speeds

When recording, press TAPE SPEED to select either SP or LP for the PAL or MESECAM system, and SP or EP for the NTSC system. A tape recorded in the EP mode runs three times as slowly, and a tape recorded in the LP mode runs twice as slowly as a tape recorded in the SP mode. You can mix different tape speeds on the same tape. When playing back, the VTR automatically detects the tape speed. See the tables below for the maximum recording/playback time in each speed.

PAL and MESECAM colour systems

Tape type	Maximum recording/playback time	
	SP	LP
E-240	4 hrs.	8 hrs.
E-180	3 hrs.	6 hrs.
E-120	2 hrs.	4 hrs.
E-60	1 hr.	2 hrs.

NTSC colour system

Tape type	Maximum recording/playback time	
	SP	EP
T-160	2 hrs. 40 min.	8 hrs.
T-120	2 hrs.	6 hrs.
T-60	1 hr.	3 hrs.
T-30	30 min.	1 hr. 30 min.

Recording using the quick timer

The quick timer enables you to record for a specified period of time in intervals of 30 minutes. Once you specify the recording time, the VTR automatically stops recording. Before you begin, check that the clock is set correctly.

After you start recording, press QUICK TIMER until the desired duration appears in the display window. The TIMER REC indicator on the VTR lights up. Each press increases the recording duration in increments of 30 minutes as shown below.

→ 0:00 → 0:30 → 1:00 ----→ 8:30 → 9:00 ↩

The recording duration decreases minute by minute to 0:00, then the VTR turns off automatically.

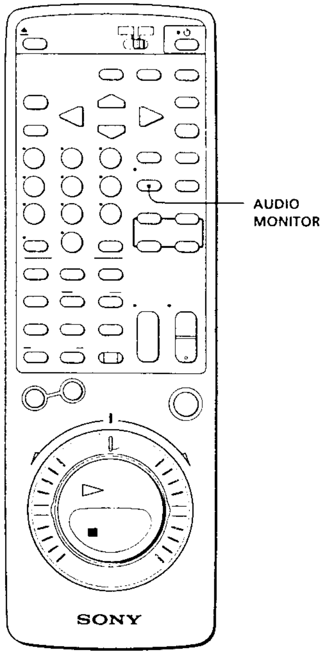
To stop recording

To stop quick-timer recording while the VTR is recording, press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VTR.

To extend the recording duration while recording

Press QUICK TIMER until the desired duration appears in the display window.

Recording TV programmes
(continued)


AUDIO MONITOR
SONY

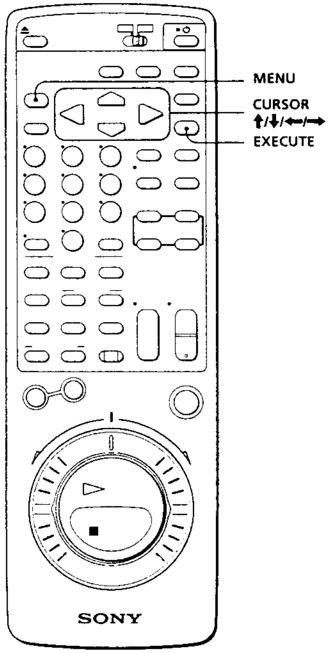
Note
- The AUDIO MONITOR button doesn't work while recording stereo programmes in ZWEITON system.

Recording stereo and bilingual programmes: in ZWEITON (German stereo) system

This VTR automatically receives and records stereo and bilingual programmes based on the ZWEITON system. When stereo programmes are received, the STEREO indicator appears in the display window; when bilingual programmes are received, the MAIN/L indicator appears in the display window.

To monitor bilingual programmes while recording
Press AUDIO MONITOR to select the desired sound.

To listen to	Press AUDIO MONITOR until	
	The TV screen shows	The display window shows
Main sound	"MAIN"	"MAIN/L"
Sub sound	"SUB"	"SUB/R"
Main and sub sounds	"MAIN/SUB"	"MAIN/L, SUB/R"

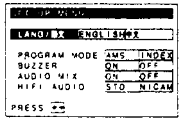

MENU
CURSOR ↑/↓/←/→
EXECUTE
SONY

Note
- If you set HI-FI AUDIO to STD, the standard sound is recorded on both the hi-fi and normal audio tracks. (You cannot select the listening sound using AUDIO MONITOR.)

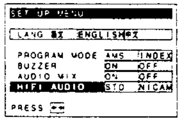
Recording stereo and bilingual programmes: in NICAM system

This VTR receives and records stereo and bilingual programmes based on the NICAM system. When NICAM broadcasts are received, the STEREO indicator appears in the display window; when bilingual programmes are received, the NICAM indicator lights up in the display window.

1 Press MENU and select SET UP MENU.


SET UP MENU
LANG/ ENGLISH
PROGRAM MODE AMS INDEX
BUZZER ON OFF
AUDIO MIX ON OFF
HIFI AUDIO STD NICAM
PRESS

2 Set HI-FI AUDIO to NICAM by pressing CURSOR ↑/↓/←/→.


SET UP MENU
LANG ENGLISH
PROGRAM MODE AMS INDEX
BUZZER ON OFF
AUDIO MIX ON OFF
HIFI AUDIO STD NICAM
PRESS

3 Press EXECUTE to store the setting.

Using the NICAM setting, NICAM broadcasts are recorded as in the following table.

Track	Sound recorded	
	Stereo	Bilingual
Hi-fi audio Left channel	Left channel	Main
Hi-fi audio Right channel	Right channel	Sub
Normal audio (monaural)	Standard (usually the mix of left and right channels)	Standard (usually the main sound)

Recording TV programmes
(continued)

To monitor stereo and bilingual programmes while recording
Press AUDIO MONITOR to select the desired sound.

Stereo programmes

To listen to	Press AUDIO MONITOR until	
	The TV screen shows	**The display window indicator shows**
Stereo sound	"STEREO"	"STEREO"
Standard sound	No indication	No indication

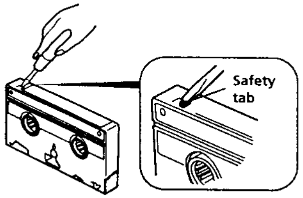
Bilingual programmes

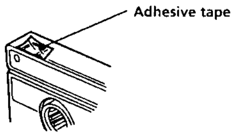
To listen to	Press AUDIO MONITOR until	
	The TV screen shows	**The display window indicator shows**
Main sound	"MAIN"	"MAIN/L"
Sub sound	"SUB"	"SUB/R"
Main and sub sounds	"MAIN/SUB"	"MAIN/L, SUB/R"
Standard sound	No indication	No indication

Saving a recording

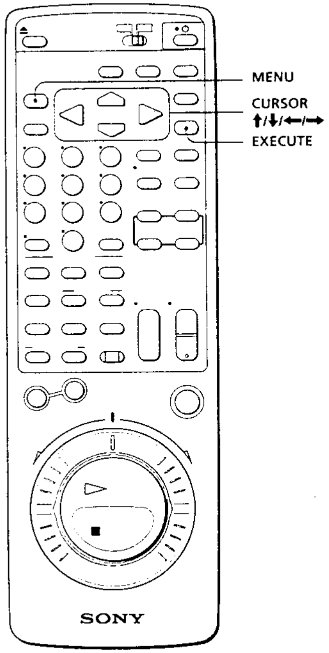
Video tapes have a safety tab to protect against accidental recording. To prevent accidental erasure of a recording, break off the safety tab with a screwdriver or other tool. A tape with its safety tab removed ejects if you try to record on it.

To record on a tape with its safety tab removed, cover the tab hole with adhesive tape.




Adhesive tape

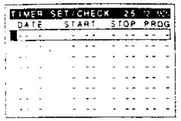
Recording TV programmes using the timer


MENU
CURSOR ↑/↓/←/→
EXECUTE
SONY

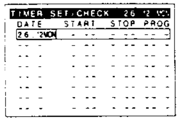
This section shows you how to let the VTR automatically start and stop recording TV programmes. You can preset up to eight programmes within a one month time frame.

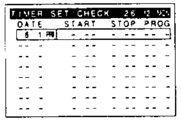
Before you start...
- Check that the clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VTR.

1 **Press MENU and select TIMER SET/CHECK, then press EXECUTE.**
A short beep alerts you if the clock needs to be set.

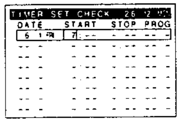

TIMER SET/CHECK
DATE
START
STOP
PROG

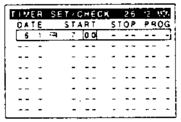
2 **Set the date to start recording:**
1 Press CURSOR ➡.
Make sure today's date is highlighted. If it isn't, reset the clock to the correct time.
2 Press CURSOR ⬆ to set the month and date.
The day of the week is set automatically.
To record the same programme every day or the same day once a week, see "Daily/weekly recording" on page 29.


TIMER SET/CHECK
DATE
START
STOP
PROG

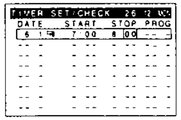

TIMER SET/CHECK
DATE
START
STOP
PROG

3 **Set the time to start recording:**
1 Press CURSOR ➡ to highlight the hour under "START," then press CURSOR ⬆/⬇ to set the hour.
2 Press CURSOR ➡ to highlight the minutes under "START," then press CURSOR ⬆/⬇ to set the minutes.


TIMER SET/CHECK
DATE
START
STOP
PROG


TIMER SET/CHECK
DATE
START
STOP
PROG

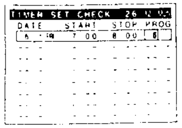
4 **Press CURSOR ➡, then set the time to stop recording in the same way.**


TIMER SET/CHECK
DATE
START
STOP
PROG
6 1
7 00
8 00

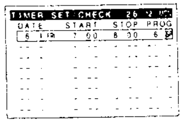
(continued)

Recording TV programmes using the timer (continued)

5 **Press CURSOR ➞, then press CURSOR ↑/↓ to select the programme you want to record.**
Only the channels preset in the VTR will appear.



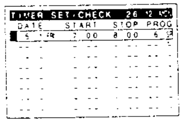
6 **Press CURSOR ➞, then press CURSOR ↑/↓ to select the tape speed, SP (standard play) or LP (long play).**
See "To select tape speeds" on page 23.



Tips
- To set the channel, you can also use the PROG +/– or number buttons.
- To record video sources from LINE IN 1 or 2 jacks, press INPUT SELECT to display "L1" or "L2" in the "PROG" position.

Tip
- To set the recording tape speed, you can also use TAPE SPEED.

7 **To confirm your programme, press CURSOR ➞.**
All the settings stop being highlighted and the cursor (▮) appears in the leftmost column.
To preset another timer setting, move the cursor to the next line using CURSOR ↓ and repeat steps **2** to **7**.



Tip
- To change or correct a setting before confirming it, press CURSOR ➞ to highlight the item you want to change and reset it.

8 **After making the desired timer settings, press EXECUTE.**

9 **Press TIMER REC ON/OFF.**
The TIMER REC indicator on the VTR lights up and the VTR turns off and stands by for recording.
The VTR automatically turns on and starts recording at the preset start time, and turns off at the preset stop time.

To stop recording
To stop while the VTR is recording a program, press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VTR.

To use the VTR while recording
You can do the following tasks during timer recording.

To	Press
Reset the counter to "0H00M00S"	COUNTER RESET
Display tape information on the TV screen	DISPLAY
Check the timer settings	MENU, and select TIMER SET/CHECK

Notes
- If the power is interrupted for more than one hour while the VTR is standing by for recording, the timer settings are cleared. Reset the timer.

Using the VTR before timer recording begins

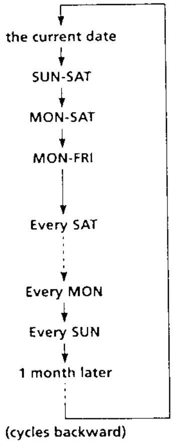
Press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VTR, then press ⏻ (on/standby). The VTR is ready for use.

After using the VTR, press TIMER REC ON/OFF again to turn on the TIMER REC indicator on the VTR. Remember to reset the VTR to stand by for recording before the time you've set the VTR to start recording, or the timer setting will be cancelled.

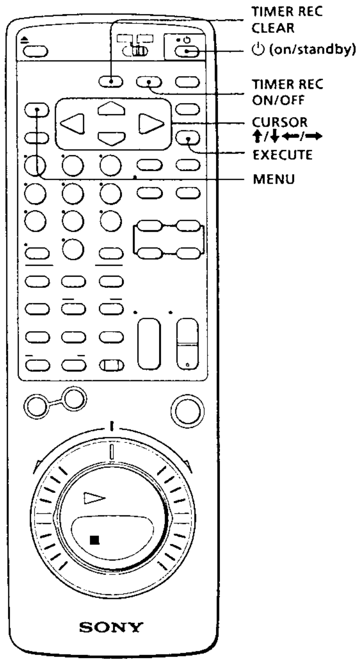
Daily/weekly recording

Daily recording records the same programme every day of the week; weekly recording records the same programme on the same day, every week.

When you set the date to start recording in step **2** of "Recording TV programmes using the timer," press D – until the desired day appears. Each time you press the button, the indication changes as shown on the left.



Checking/changing/cancelling timer settings

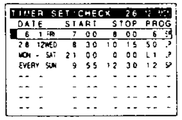

TIMER REC CLEAR
⏻ (on/standby)
TIMER REC ON/OFF
CURSOR ↑/↓/←/→
EXECUTE
MENU
SONY

This section shows you how to check, change and cancel the timer settings after you've stored them in the VTR.

Before you start...
Turn on your TV and tune in to the VTR.

1 **Press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VTR.**

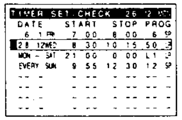
2 **Press ⏻ (on/standby) to turn on the VTR, then press TIMER CHECK to display the PROGRAM LIST on the TV screen.**



TIMER SET CHECK 26 12

DATE	START	STOP	PROG
6 1 FRI	7 00	8 00	6 SP
28 12WED	8 30	10 15	50 LP
MON - SAT	21 00	0 00	L1 LP
EVERY SUN	9 55	12 30	12 SP
-- -	- --	- --	-- -
-- -	- --	- --	-- -
-- -	- --	- --	-- -
-- -	- --	- --	-- -

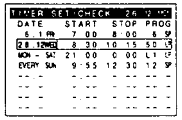
3 **Check the timer settings:**
- If you do not want to change or cancel the settings, press EXECUTE, then press TIMER REC ON/OFF to return to recording standby.
- If you want to change or cancel the settings, press CURSOR ↑/↓ to move the cursor (▮) to the setting you want to change or cancel.



TIMER SET CHECK 26 12

DATE	START	STOP	PROG
6 1 FRI	7 00	8 00	6 SP
28 12WED	8 30	10 15	50 LP
MON - SAT	21 00	0 00	L1 LP
EVERY SUN	9 55	12 30	12 SP
-- -	- --	- --	-- -
-- -	- --	- --	-- -
-- -	- --	- --	-- -
-- -	- --	- --	-- -

4 **Change or cancel the timer setting:**
- To change the setting, press CURSOR ←/→ to highlight the item you want to change, and reset it using CURSOR ↑/↓. Then, press CURSOR → to move the cursor to the leftmost column.
- To cancel the setting, press TIMER REC CLEAR.



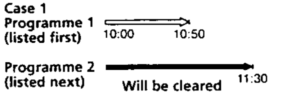
TIMER SET CHECK 26 12

DATE	START	STOP	PROG
6 1 FRI	7 00	8 00	6 SP
28 12WED	8 30	10 15	50 LP
MON - SAT	21 00	0 00	L1 LP
EVERY SUN	9 55	12 30	12 SP
-- -	- --	- --	-- -
-- -	- --	- --	-- -
-- -	- --	- --	-- -
-- -	- --	- --	-- -

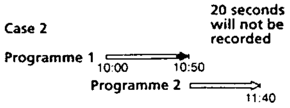
5 **Press EXECUTE.**
The VTR returns to the original screen. When there are any other timer settings left in the TIMER SET/CHECK menu, turn the VTR off to return to recording standby.

To check the timer settings during timer recording
Press MENU and select TIMER SET/CHECK. After checking, press EXECUTE to turn off the display.

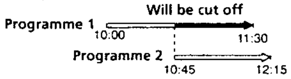
Case 1


Programme 1 (listed first)
10:00
10:50
Programme 2 (listed next)
Will be cleared
11:30

Case 2


20 seconds will not be recorded
Programme 1
10:00
10:50
Programme 2
11:40

Case 3


Will be cut off
Programme 1
10:00
11:30
Programme 2
10:45
12:15

When the timer settings overlap

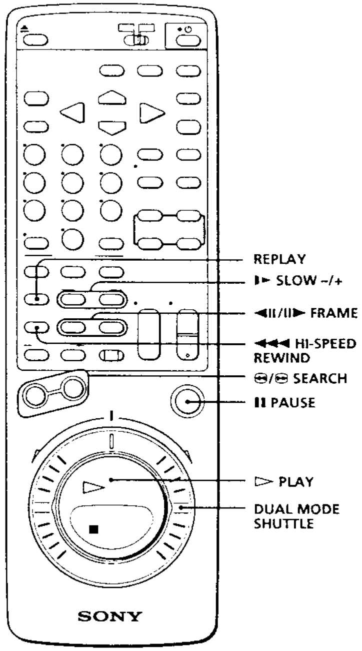
The VTR will not record overlapping programmes. If any of your timer settings overlap, change the settings.

Case 1: If you preset two programmes to start recording at the same time...
The programme listed first on the PROGRAM LIST has priority over the other programmes. The timer settings of lower priority programmes will be erased from the PROGRAM LIST when the first programme begins recording.

Case 2: If you preset programme 2 to start recording at the same time you preset programme 1 to finish recording...
The last 20 seconds of programme 1 will not be recorded because the VTR will enter recording pause for programme 2 before programme 1 is finished.

Case 3: If you preset programme 2 to start recording before programme 1 is finished recording...
Programme 2 will start recording before programme 1 has finished.

Playing/searching at various speeds



Tip
- Adjust the picture using the ▼/▲ TRACKING NORMAL/SLOW STILL ADJUST buttons if:
  - Streaks appear while playing in slow motion.
  - Bands appear on the top or bottom while pausing.
  - The picture shakes while pausing.

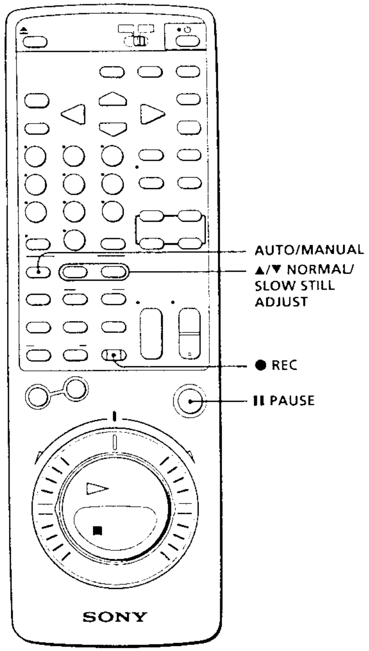
Note
- If you use these functions in the LP mode, noise may appear or there may be no colour.

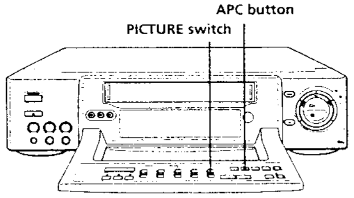
You can play back a tape at various speeds: high-speed, slow motion, frame by frame and so on. These options are also useful for searching for a specific point during playback. The sound is muted during these operations.

Playback options	Operation	To resume normal playback
Playing at various speeds: One-fifth the normal speed Twice the normal speed High speed	During playback, turn the DUAL MODE SHUTTLE ring right or left to: 1/5 X2 ⊕ or ⊖	Release the ring.
Fast-forwarding/ Rewinding	During stop, turn the DUAL MODE SHUTTLE ring to ►► FF or to ◄◄ REW and release.	Press ▷ PLAY.
Viewing the picture during fast-forward or rewind	During fast-forward, turn the DUAL MODE SHUTTLE ring to ►► FF. During rewind, turn the ring to ◄◄ REW.	To return to the previous mode, release the ring.
Locking in a high-speed picture	During playback or pause, press ⊖ SEARCH or ⊕ SEARCH. To change direction, press ◄II FRAME (backward) or II► FRAME (forward).	Press ▷ PLAY.
Locking in a slow-motion picture	During playback or pause, press I► SLOW –/+. To change direction, press ◄II FRAME (backward) or II► FRAME (forward).	Press ▷ PLAY.
Playing frame by frame	During pause, press II► FRAME to advance the picture one frame or ◄II FRAME to reverse the picture one frame.	Press ▷ PLAY.
Playing in reverse	During playback, press ◄II FRAME.	Press ▷ PLAY.
Replaying a scene	During playback or pause, press REPLAY and hold it down until the desired scene appears. When you release the button, the scene is played back in slow motion.	Press ▷ PLAY or II PAUSE.
Rewinding at high speed	Press ◄◄◄ HI-SPEED REWIND.	Press ▷ PLAY.
Rewind and restart play	During stop, press ▷ PLAY on the VTR while holding the DUAL MODE SHUTTLE ring on the VTR at the ◄◄ REW position, or while pressing down ◄◄◄ HI-SPEED REWIND on the VTR.	—

Note
- When rewinding at high speed, you will not see the time counter.

Adjusting the picture





Notes

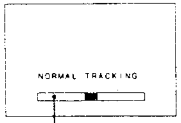
- Tapes recorded using the APC function are played back normally on VTRs that do not have the APC function.
- Press **II** PAUSE to release recording after the APC indicator stops flashing. If you start recording before the APC indicator stops flashing, the APC function is cancelled.

The VTR automatically adjusts the picture for the best possible playback or recording. If, however, you find the automatic adjustment unsatisfactory, you can adjust the picture manually.

Adjusting the tracking

Though the VTR automatically adjusts the tracking when playing a tape (the AUTO TRACKING indicator flashes in the display window, then lights steadily), distortion may occur if the tape was recorded in poor condition. If so, manually adjust the tracking condition.

Press the ▼/▲ TRACKING NORMAL/SLOW buttons to display the tracking meter. The distortion should disappear as you press one of the two buttons. If you cannot get a clear picture with manual adjustment, press TRACKING AUTO/MANUAL to return to automatic adjustment.



Tracking meter

Reducing streaks and/or snow

Set the PICTURE switch on the VTR to RENTAL PICTURE.

About Adaptive Picture Control (APC)

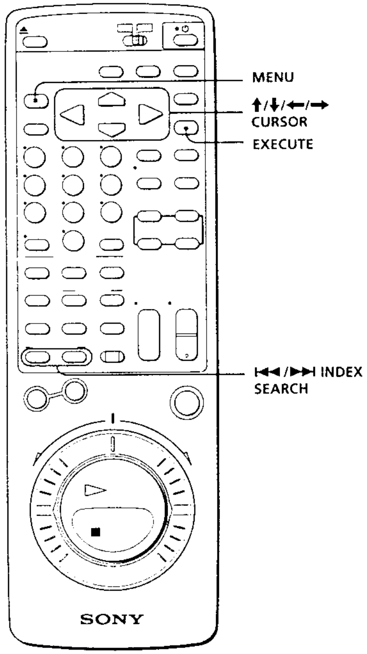
Adaptive Picture Control (APC) automatically improves recording and playback quality by adjusting the VTR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you leave APC on (with the APC indicator in the display window lit).

To use APC during playback
The APC function automatically works on all types of tapes, including rental tapes. You can play a tape using the APC function even if the tape was not recorded with it.

To use APC while recording
Whenever you insert a tape and first start recording, the VTR adjusts to the tape using the APC function (the APC indicator flashes rapidly). This adjustment is retained until the tape is ejected. There is a short delay before the VTR actually starts recording while the VTR analyzes the tape.

If you want to start recording precisely the first time you record, set the VTR to recording pause mode (the APC indicator flashes slowly) and press ● REC to let the VTR analyze the tape. When the APC indicator stops flashing, press **II** PAUSE to start recording. Recording begins immediately.

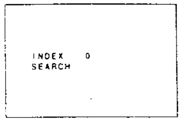
Searching using the index function



The VTR automatically marks an index signal at the point where recording starts (with the exception of when you start recording from recording pause). Use this as a reference to find the beginning of the recording. Since the index number indicates the relative position from the current position, specify how many index signals ahead or behind the specific index signal is from the current position.

1 **Insert an indexed tape into the VTR.**

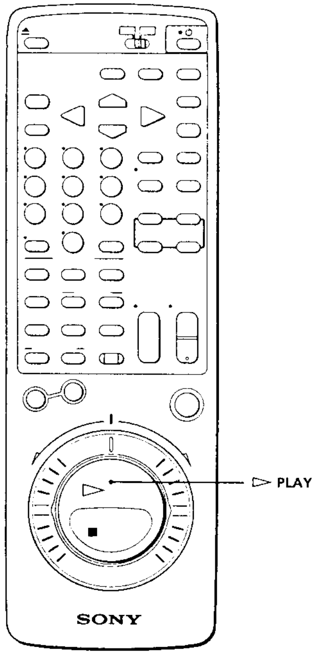
2 **Press the I◀◀/▶▶I INDEX SEARCH buttons repeatedly until the index number you want appears on the TV screen:**



- To locate succeeding programmes, press ▶▶I INDEX SEARCH.
- To locate preceding programmes, press I◀◀ INDEX SEARCH.

The VTR starts searching and the index number on the TV screen counts down to zero. Playback starts automatically from that point.

Karaoke sing-along



Tip
- You can also sing along with TV broadcasts or music played back on equipment connected via the LINE IN jacks on the VTR.
Turn on the playback source, then follow steps **3** and **6** - **8** on this page.

Notes
- If the sound is reproduced through a stereo amplifier, turn down the volume of the amplifier before operation.
- If the microphone volume is too high, the sound may be distorted.
- If feedback occurs, turn down the microphone volume or the sound volume of the TV, or move the microphone away from the speakers.

You can sing along with a karaoke tape played back on the VTR, to a TV broadcast, or to music played back on equipment connected to the LINE IN jacks on the VTR. You can also connect two microphones to sing duets. Connect the microphone (or two microphones) to the MIC 1 and/ or MIC 2 jack(s).

To sing along with karaoke tapes

1 Insert a karaoke cassette.
The VTR turns on automatically. If the safety tab of the cassette is removed, playback also starts automatically.

2 Turn on the TV.
If you have made the VTR/TV connection via the aerial socket, select the programme position for the VTR on the TV.

3 Set the KARAOKE ON/OFF switch to ON.
When not using the karaoke function, set this switch to OFF.

4 Set the COLOR SYSTEM switch on the VTR to control the colour system of the playback source.
Normally this switch should be set to AUTO. If streaks appear when playing back a video tape, select the colour system format that matches the format the video tape was recorded with to obtain a better picture. After you are finished, return the COLOR SYSTEM switch to the AUTO position.

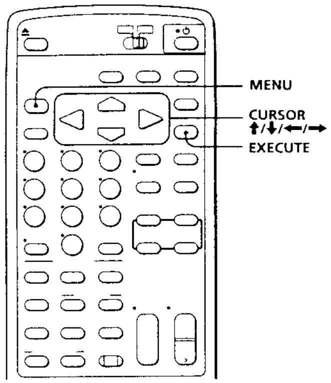
5 Press ▷ PLAY.
Playback starts.

6 Turn on and sing into the microphone(s).

7 Adjust the volume of the microphone(s) with the MIC VOL 1 and/or MIC VOL 2 control(s) while singing. (To use the controls, push them in so that they pop out.)

8 Adjust the echo effect with the ECHO control while singing. (Push the control in so that it pops out.)
The echo effect is applied to both microphones.

For optimum echo effect
Adjust the microphone volume to a little higher level than the music volume to obtain optimum echo effect.



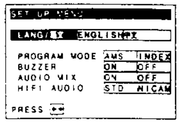
Notes
- When you want to change the PROGRAM MODE settings, exit KARAOKE PROGRAM mode.
- Searching while in KARAOKE PROGRAM mode is not related to "Searching using the index function" on page **35**. The PROGRAM MODE settings only apply to search in KARAOKE PROGRAM mode.

Tip
- AMS (Automatic Music Sensor) searches for blank spaces at least 1 seconds long between recorded tape segments.
INDEX searches for indices that have already been inserted on the tape.
Check the cassette box to see if a tape is index-compatible or not.

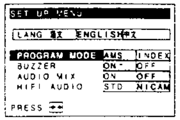
Notes
- You can enter up to 10 songs, indexed from 1 to 99, on your custom karaoke list.
- When you enter the 10th song, the field for the first song in the list becomes highlighted again.
- You cannot delete settings, but you can overwrite them. If you set the KARAOKE ON/OFF switch to OFF, the list settings are cleared.
- If there is excessive noise between the songs during AMS search, the preset song order may be tweaked.

You can sing along with tapes played back on this VTR. For a more fulfilling karaoke experience, the VTR also allows you to index and edit any tape, so that you can perform the songs in the desired order.
First you must set your VTR according to the tape you are using; some tapes (index-compatible tapes) come with preset indices, while others do not. Follow the procedure below.

1 Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to SET UP MENU, and press EXECUTE.



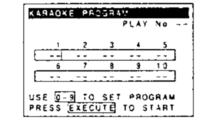
2 Press CURSOR ↑/↓ to highlight PROGRAM MODE, then press CURSOR ←/→ to highlight either INDEX or AMS.
If you are using an index-compatible tape, set to INDEX. If the tape is not index-compatible, or if you are not sure of the tape type, set to AMS. When you enter KARAOKE PROGRAM mode, the PROGRAM MODE setting appears in the display window for confirmation.



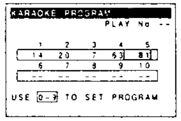
Making a custom karaoke list

1 Set the KARAOKE ON/OFF switch on the VTR to ON.

2 Press MENU. Then press CURSOR ↑/↓ to move the cursor (▮) to KARAOKE PROGRAM, and press EXECUTE.
The KARAOKE PROGRAM menu appears on the TV screen.
The selected PROGRAM MODE setting appears in the display window.



3 Use the number buttons to select the desired song order. When you are finished, press EXECUTE.
The list requires two-digit numbers; for single-digit numbers, first press "0" and then the song number. Before playback, the tape automatically rewinds to the beginning, and playback starts in the order specified in step **2**. While the VTR searches for a song, its number flashes in the display window. When it has been found, the number lights steadily.



(continued)

Karaoke sing-along
(continued)

Notes
- The optional microphone has a linear rewind function, but if you rewind past the beginning of the current song, the preset song order may be tweaked.
- These functions/buttons are operable during playback in KARAOKE PROGRAM mode:
  - To stop playback, press ■ STOP.
  - To turn the VTR off during playback, press ⏻ (on/standby).
  - To eject the cassette, press ⏏ EJECT.
- If you press a button other than those listed above, you automatically exit the KARAOKE PROGRAM mode.
- When all the songs in the list have been played, the tape stops.
- When not used during playback in KARAOKE PROGRAM mode as in step **4**, the INDEX SEARCH function returns to its ordinary state.

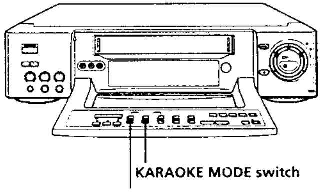
4 **To rewind to the beginning of the song being played back, and to fast-forward to the next song, use the ⏮/⏭ INDEX SEARCH buttons.**

You cannot search beyond the scope of the current song with the remote commander.

5 **To change the settings when in KARAOKE PROGRAM mode, repeat steps 2 to 3.**

Notes
- Vocal reduction does not work with the following tapes:
  - Tapes on which different vocal sounds are recorded on the left and right channels, such as a duet.
  - Monaural recorded tapes.
  - Tapes on which sound sources are recorded with strong echoes and/or chorus.
- Vocal assist does not work with the following tapes:
  - Hi-fi tapes on which a single sound is recorded on the left and right channels.
  - Monaural recorded tapes.

To use the KARAOKE MODE switch, the KARAOKE SURROUND switch, the buttons on the optional microphone and the KEY CONTROL buttons, the KARAOKE ON/OFF switch must be set to ON.



Reducing the vocals

Since the vocals on the playback source media can be reduced with this function, you can enjoy singing with hi-fi stereo music video tapes or hi-fi stereo tapes on which music programmes have been recorded from TV.
Set the KARAOKE MODE switch to KARAOKE PON, which minimises the singer's voice.

To cancel the vocal reduction
Set the KARAOKE MODE switch to OFF.
When not in use, this switch should be set to OFF.

Vocal assist

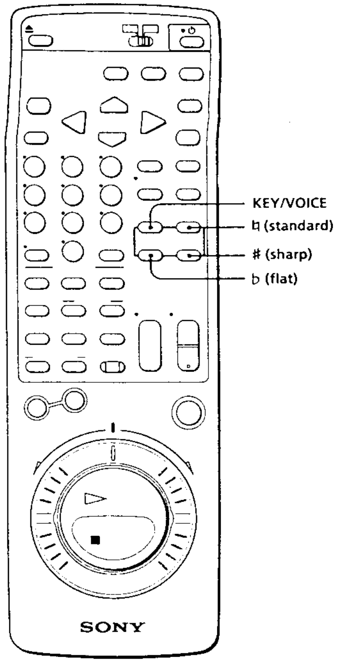
With this function you can make use of karaoke stereo hi-fi tapes. These tapes have only the accompaniment music on the left channel and the accompaniment plus the vocal on the right channel.
If you forget the words while singing and stop singing into the microphone(s), this function will automatically fill in the vocal for you using the recorded vocal.
Set the KARAOKE MODE switch to VOCAL ASSIST.

To cancel the vocal assist
Set the KARAOKE MODE switch to OFF.
When not in use, this switch should be set to OFF.

Surround sound

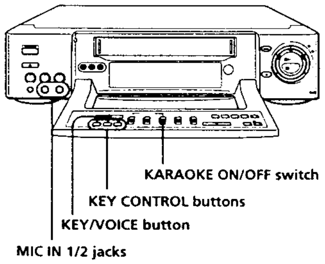
With this function you can adjust the karaoke surround sound effect to suit your location. If you are in a large room, such as a meeting hall, etc., set the KARAOKE SURROUND switch to HALL. If you are in a small room such as a bar, set the KARAOKE SURROUND switch to KARAOKE BAR.

To cancel the surround sound effect
Set the KARAOKE SURROUND switch to OFF.
When not in use, this switch should be set to OFF.



Tips

- To be able to change the pitch and to repeat playback of songs via the microphone, use the F-KM1 microphone (not supplied). For details, consult your Sony dealer.

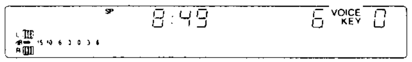


Changing the pitch

While you are singing, you can change the tone of your voice or tune to suit each other.

1 Set the KARAOKE ON/OFF switch to ON.

2 Press KEY/VOICE.
With each press, the VOICE/KEY indicator in the display window toggles between displaying "VOICE" and "KEY."



To change the pitch of the tune, light the KEY indicator.
To change the pitch of your voice, light the VOICE indicator.

3 Press ♯ (sharp) to raise the pitch and ♭ (flat) on the VTR or remote commander to lower the pitch. To reset the default pitch, press ♮ (standard).

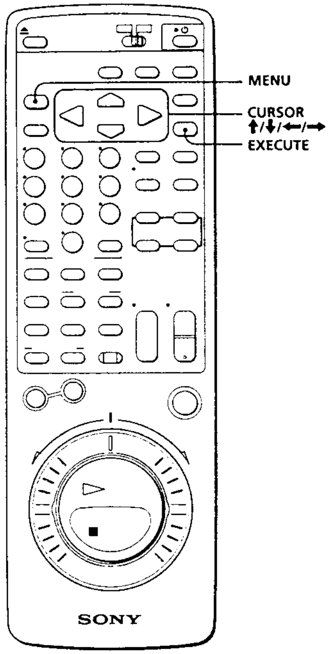
To	Press	Range	Display indicator
raise the pitch	♯ (sharp)	7 half notes	"♯1" to "♯7"
reset the default pitch	♮ (standard)	—	"–"
lower the pitch	♭ (flat)	7 half notes	"♭1" to "♭7"

Using the microphone

Use the ON/OFF switch on the microphone to turn it on or off.

Before you begin, make sure that the microphone lead is plugged into either the MIC IN 1 or MIC IN 2 jacks on the front of the VTR.

Game play



Tip

- To pause the game, press EXECUTE. Press again to resume play.

Notes

- To stop playing, press MENU during play, not during game pause.
- If you press other buttons than those described in this section, you temporarily exit game play and the screen turns gray. The game screen appears a moment later.
- Long game play sessions consume much battery power, and speed up battery exhaustion.
- Due to discrepancies between the television systems, the size of the game screen may differ between PAL and NTSC monitors.

One of the special features of this VTR is a true video game, which adds lots of enjoyment to the basic VTR concept of recording and playback. This provides an alternative to expensive and complex TV games; it's a simple, colourful pleasure for the rest of us.

The goal

The goal of this game is to collect as many points as possible before running out of time. You accumulate points by filling colour-coded rows with squares of matching colour.

Outline

You create squares by converting a bouncing ball into a coloured square. You select the colour of the square with your three-coloured (green, red, yellow) control bar, which is located at the centre of the screen. When the ball passes through the bar, it is instantly converted into a small, square icon. The colour of the icon depends on which bar area the ball hits. The icon then follows the path of the ball; if the ball hit the control bar on the way up, the icon continues upwards through the bar, and vice versa.

At the top of the screen are three horizontal rows, one for each of the three colours. If the ball passes through, say, the green area on your bar, the green icon follows the path of the ball until it bounces against one of eight square areas in the green row at the top. If it hits a vacant (recessed) area, that area is instantly filled (raised). The icon then changes back into a bouncing ball, which you must try to "catch" again. If the icon hits a filled area, it simply bounces off, already retransformed into the ball. On the contrary, if you don't manage to catch the ball with the bar, it will clear the first filled area it bounces against on the way up.

Game progress

To start a game, press MENU. Select GAME, and press EXECUTE. Press EXECUTE to read the game instructions, and press EXECUTE again to get started.

To move the control bar, keep the remote commander aimed at the remote sensor on the VTR and press CURSOR ←/→.

As the game progresses, the colour schemes change to make it more difficult to fill the rows at the top. If you still manage to do that, you still have to worry about an increasingly faster ball.

Collecting points

When a row at the top has been completely filled, the rows are shuffled, the colour order on the control bar changes, and you receive a certain amount of points. Exactly how many points you score for a filled row depends on your game progress. As a bonus, 30 extra seconds are added to the game timer for every filled row.

Two scores are shown at the top of the screen: "BEST" displays the highest score achieved during this game session, and "YOU" shows your current score.

Game over

This is a real-time game, and you start out with 100 seconds. The timer at the top right of the screen displays the remaining amount of time. When the timer reaches "0000," the game is over. Try, try, try again...

Looking at menu options

Note
- PROGRAM MODE settings only apply when you are in KARAOKE PROGRAM mode.

Tip
- See "How sound is recorded on a video tape" on page **21**.

The *SET UP MENU* provides you with various options to set up and customise your VTR. See the table below for the available menu choices. Initial settings are indicated in bold letters.

Menu choices

Menu option	Set this option to
LANG/中文	• **ENGLISH** to set the on-screen language to English. • 中文 to set the on-screen language to Chinese.
PROGRAM MODE (K881)	• **AMS** to search for recording start points on non-indexed tapes. • INDEX to search for recording start points on indexed tapes. For details, see page **37**.
BUZZER	• **ON** to make the buzzer sound when an illogical setting is made. • OFF to turn the buzzer off.
AUDIO MIX (736EE/836EE/X821/X831)	• ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button becomes inoperable • **OFF** to select the sound using the AUDIO MONITOR button.
HIFI AUDIO (836EE/K881/X831)	• STD to record standard sound on a hi-fi audio track. • **NICAM** to record NICAM broadcasts on a hi-fi audio track. For details, see page **25**.
DIMMER (EXCEPT K881)	• **ON** to dim the FIP light. • OFF to brighten it.
TIMER REC-REW (736EE/X731/X821)	• **ON** to automatically rewind the tape after all timer settings have been recorded. • OFF to canel this setting.*

---

* If the tape has been recorded to the end, the VTR rewinds it regardless of this setting.

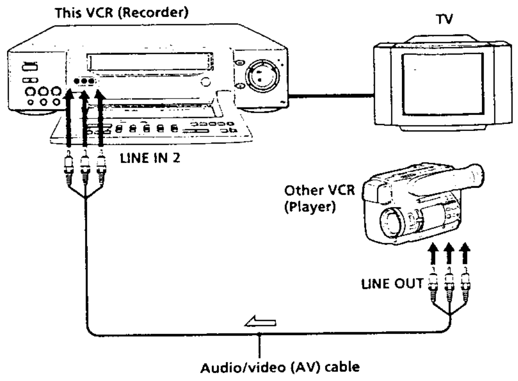
Editing

Editing with another VTR

Tips
- Make sure you connect the plugs to jacks of the same colour.
- If the other VTR is a monaural type, leave the red plugs unconnected.

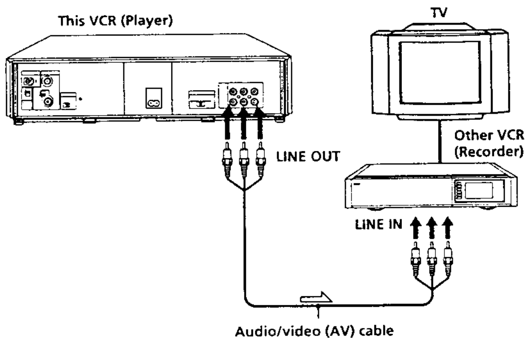
This section shows you how to edit to or from another VTR or camcorder. You can make a copy of a tape using this VTR for recording or playback.

How to hook up to record on this VTR



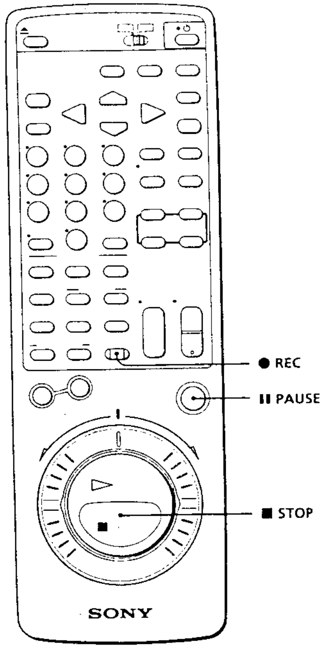
⇨ : Signal flow

How to hook up to record on another VTR



⇨ : Signal flow

Editing with another VTR
(continued)



Tips

- To make your editing more precise, use the pause buttons on both VTRs.
- To cut out unwanted scenes while editing, press II PAUSE on this VTR when an unwanted scene begins. When it ends, press II PAUSE again to resume recording (assemble editing).

Operation (when recording on this VTR)

Before you start editing

- Press INPUT SELECT to display "L2" in the display window.
- Press TAPE SPEED to select the recording tape speed (SP/LP for the PAL or MESECAM systems, or SP/EP for the NTSC system).
- On this VTR, set the PICTURE switch on the VTR to EDIT. If the other VTR has a similar switch, set it to EDIT as well.

1 **Insert a source tape with its safety tab removed into the other (playback) VTR. Search for the point to start playback and set it to playback pause.**

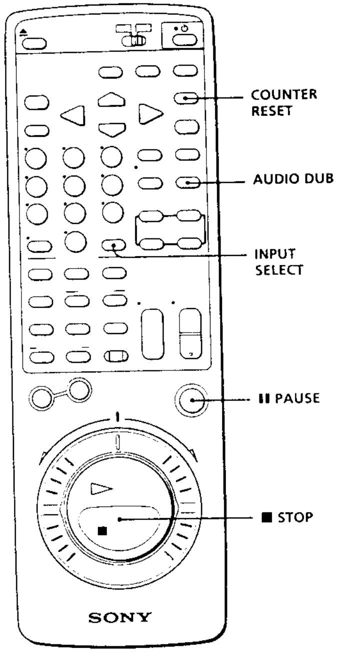
2 **Insert a tape into this (recording) VTR. Search for the point to start recording and press II PAUSE.**

3 **Press the ● REC button on this VTR and set it to recording pause.**

4 **To start editing, press the II PAUSE buttons on both VTRs to release the VTRs from pause.**
For best results, press the pause button on the other VTR before pressing II PAUSE on this VTR.

To stop editing
Press the ■ STOP buttons on both VTRs.

Audio dubbing

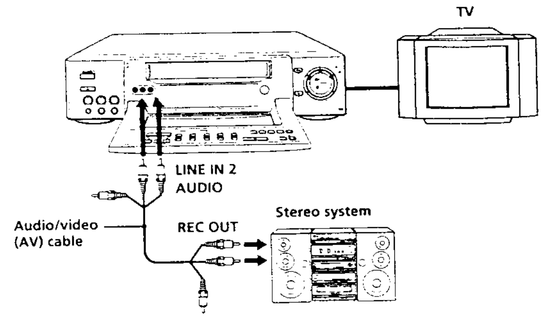


Note

- You must be in playback pause mode before pressing AUDIO DUB. (If you are in recording pause mode, you cannot use the audio dubbing features.)

You can add music or narration on the normal audio track. The monaural sound previously recorded is replaced while the original picture and hi-fi sound on the main track are retained. (See page **21**.)

How to hook up



Operation

Before you start editing
Press INPUT SELECT to display "L2" in the display window.

1 **Play a recording source. Search for the point to start playback and set it to playback pause.**

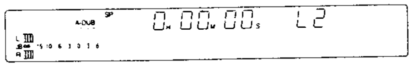
2 **Insert the prerecorded tape into this VTR. Search for the end of the section you want to dub new sound to and press II PAUSE.**
Make sure that the tape has its safety tab in place so that you can dub new sound onto it.

3 **Set the KARAOKE MODE ON/OFF switch to ON.**

4 **Press COUNTER RESET on this VTR to reset the counter to "0H00M00S."**

5 **Rewind the tape to the beginning of the section.**
This VTR pauses.

6 **Press AUDIO DUB.**
The A-DUB indicator lights up in the display window.



(continued)

7 **To start editing, simultaneously press the II PAUSE buttons on this VTR and the stereo system.**
When the counter of this VTR reaches "0H00M00S," audio dubbing stops automatically.

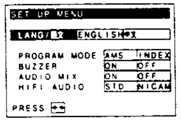
To stop editing
Press the ■ STOP buttons on this VTR and the stereo system.

Listening to both audio tracks during playback

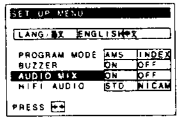
Tip
- See "How sound is recorded on a video tape" on page **21**.

When playing an audio-dubbed tape, you have a choice of listening sound. To listen to the sounds recorded on the hi-fi audio and normal audio tracks at the same time, use the SET UP MENU.

1 Press MENU and select SET UP MENU.


SET UP MENU
LANG/言語 ENGLISH
PROGRAM MODE AMS INDEX
BUZZER ON OFF
AUDIO MIX ON OFF
HIFI AUDIO STD NICAM
PRESS

2 Set AUDIO MIX to ON by pressing CURSOR ↑/↓/←/→.


SET UP MENU
LANG/言語 ENGLISH
PROGRAM MODE AMS INDEX
BUZZER ON OFF
AUDIO MIX ON OFF
HIFI AUDIO STD NICAM
PRESS

Note
- If AUDIO MIX remains ON, the AUDIO MONITOR button remains inoperative.

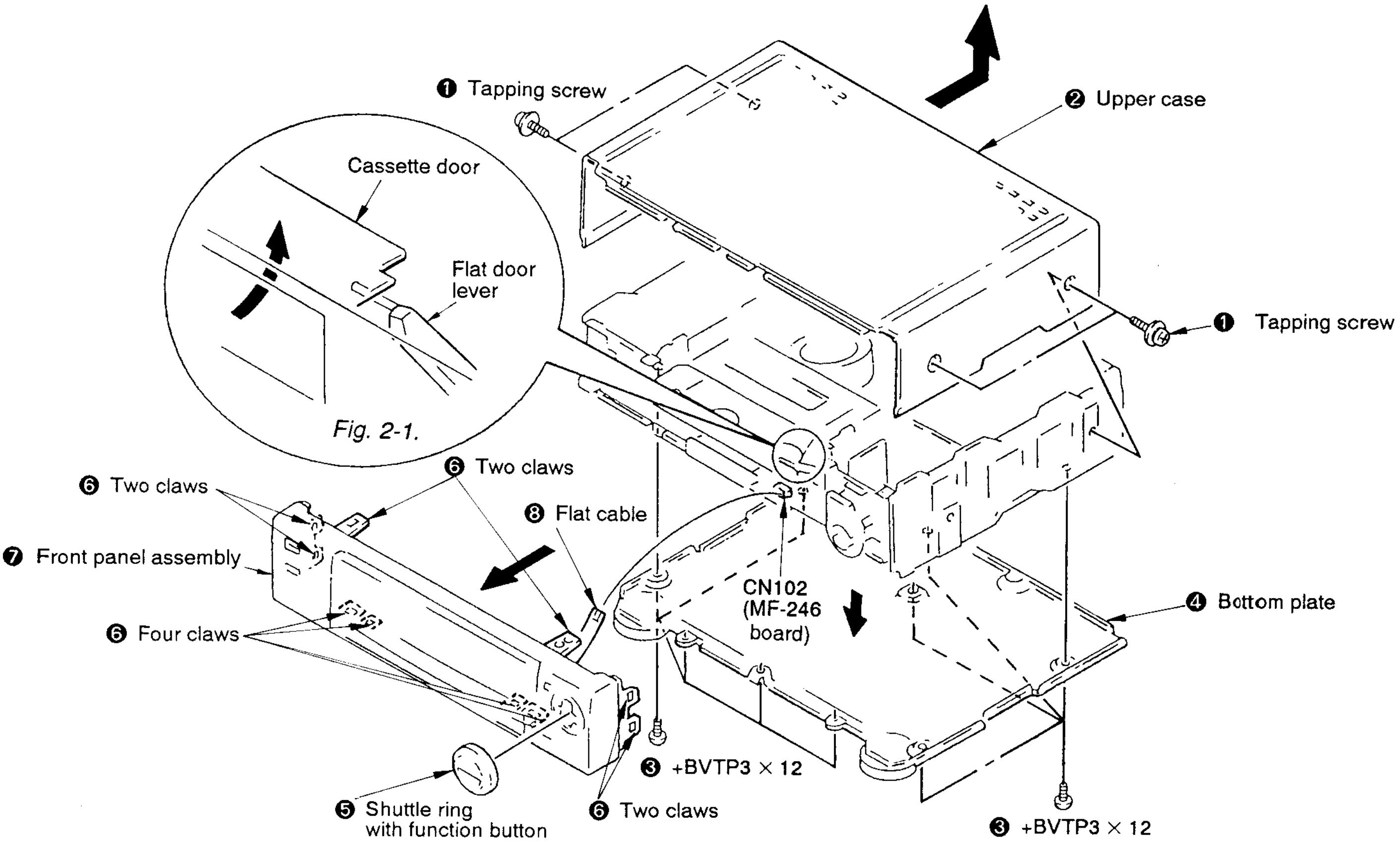
3 Press EXECUTE to store the setting.
The AUDIO MONITOR button becomes inoperative, and the sound you hear is mixed.
After playing the audio-inserted tape, reset AUDIO MIX to OFF.

SECTION 2

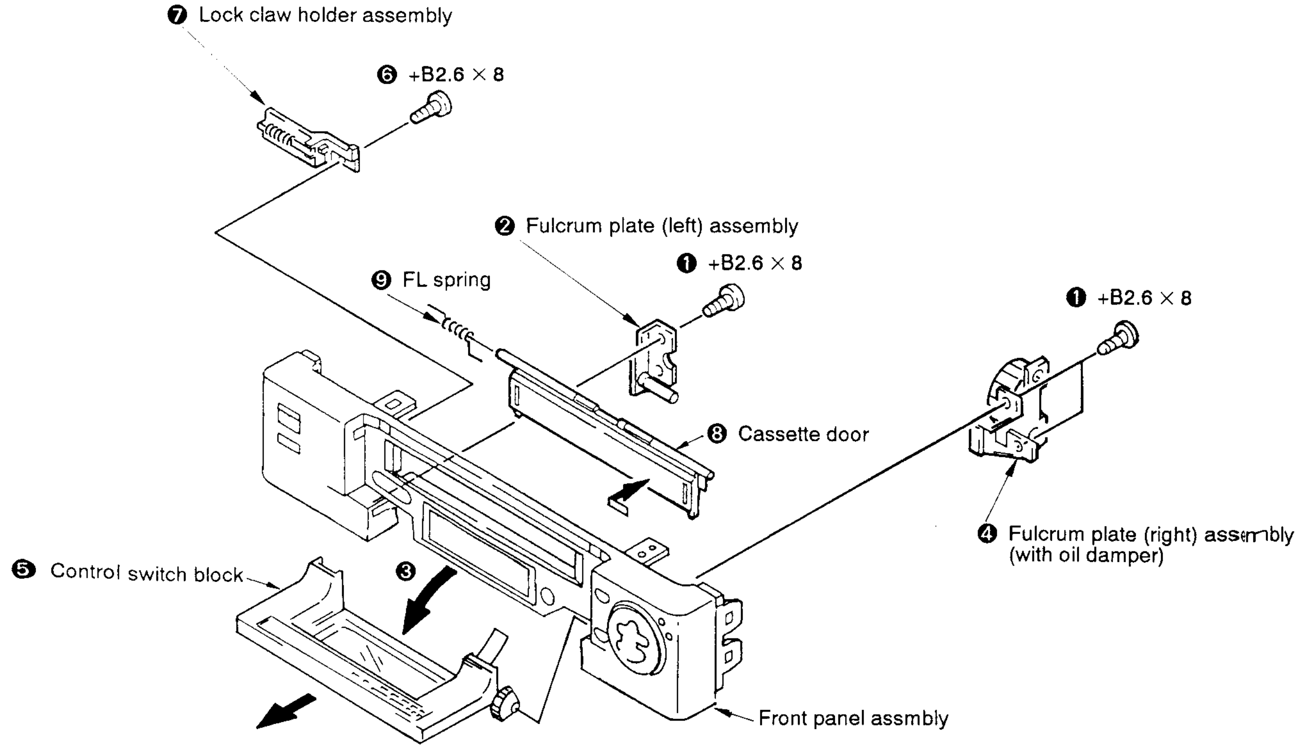
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

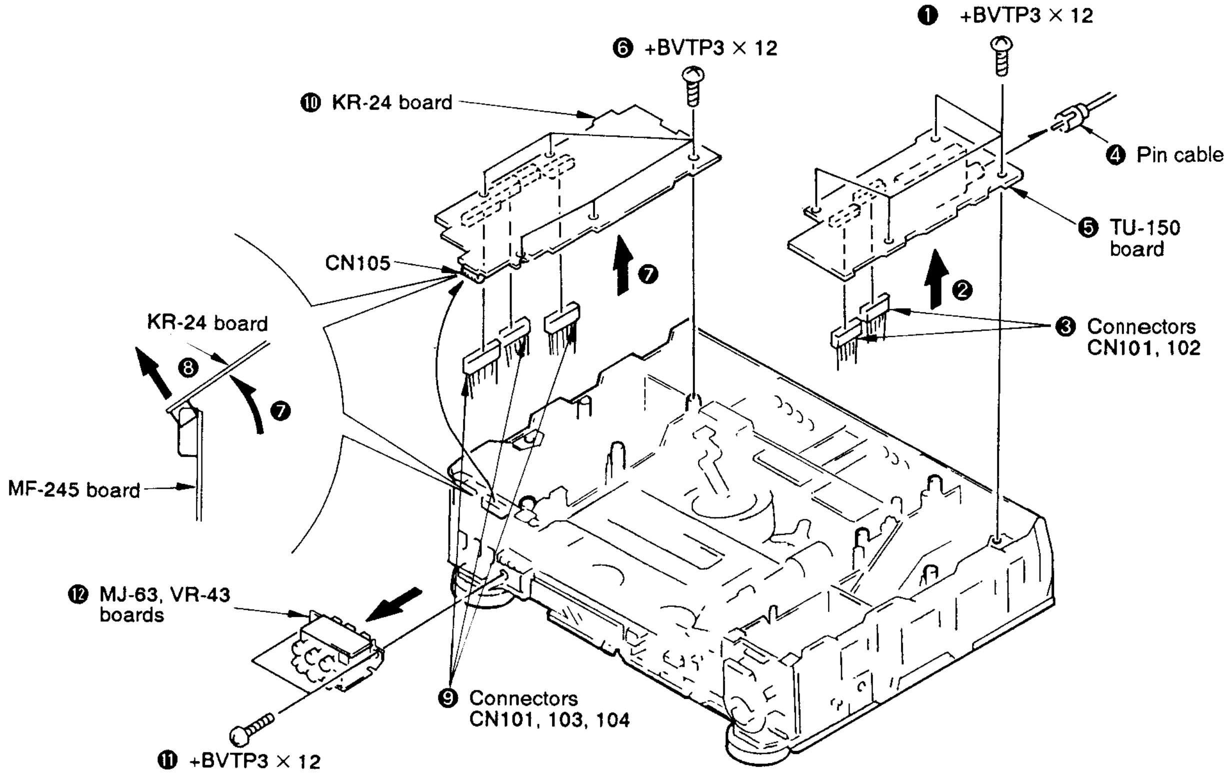
2-1. FRONT PANEL ASSEMBLY AND CASE


❶ Tapping screw
❷ Upper case
Cassette door
Flat door lever
Fig. 2-1.
❶ Tapping screw
❻ Two claws
❻ Two claws
❽ Flat cable
❼ Front panel assembly
❻ Four claws
CN102 (MF-246 board)
❹ Bottom plate
❸ +BVTP3 × 12
❺ Shuttle ring with function button
❻ Two claws
❸ +BVTP3 × 12

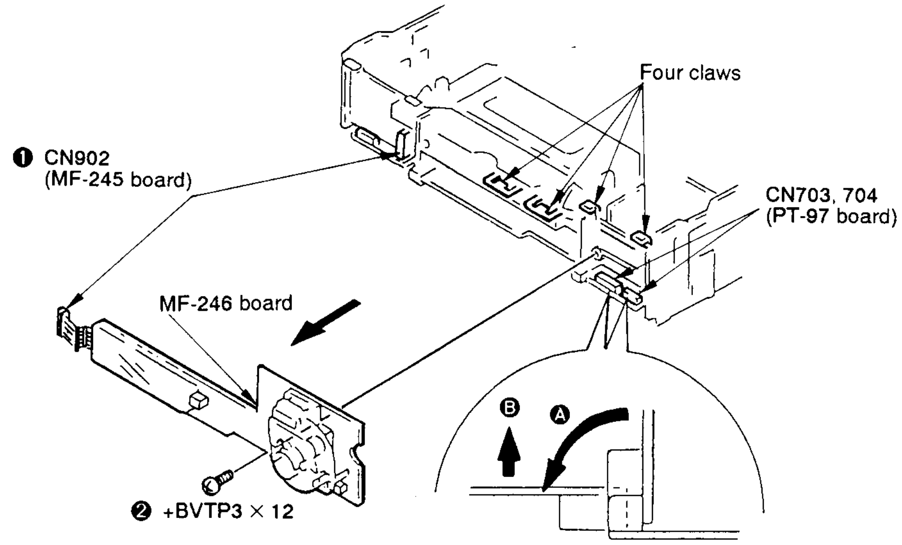
2-2. CONTROL SWITCH BLOCK, CASSETTE DOOR


❼ Lock claw holder assembly
❻ +B2.6 × 8
❷ Fulcrum plate (left) assembly
❶ +B2.6 × 8
❾ FL spring
❶ +B2.6 × 8
❽ Cassette door
❹ Fulcrum plate (right) assembly (with oil damper)
❺ Control switch block
❸
Front panel assmbly

2-3. TU-150 BOARD (SLV-836EE/K881/X831), KR-24, MJ-63, VR-43 BOARDS (SLV-K881)

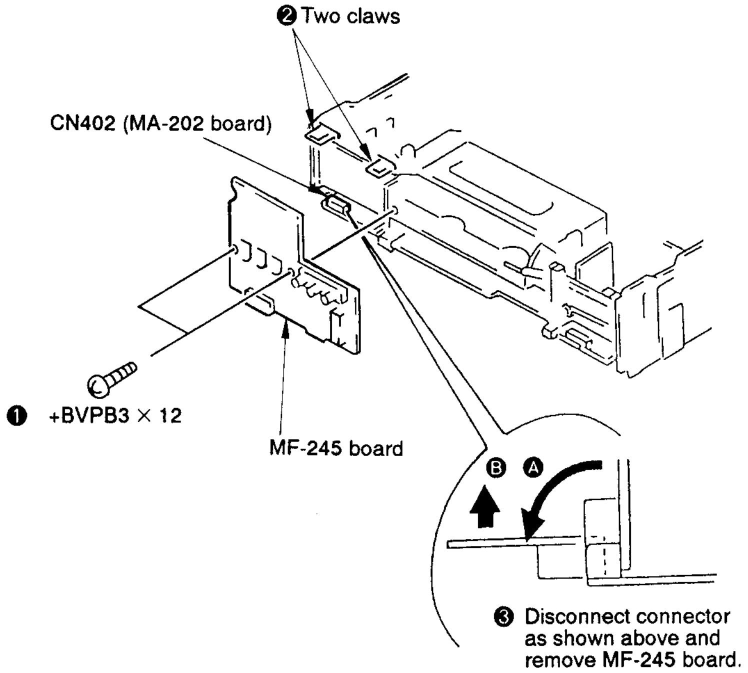

❶ +BVTP3 × 12
❻ +BVTP3 × 12
❿ KR-24 board
❹ Pin cable
❺ TU-150 board
CN105
❼
❷
❸ Connectors CN101, 102
KR-24 board
❽
❼
MF-245 board
⓬ MJ-63, VR-43 boards
❾ Connectors CN101, 103, 104
⓫ +BVTP3 × 12

2-4. MF-246 BOARD

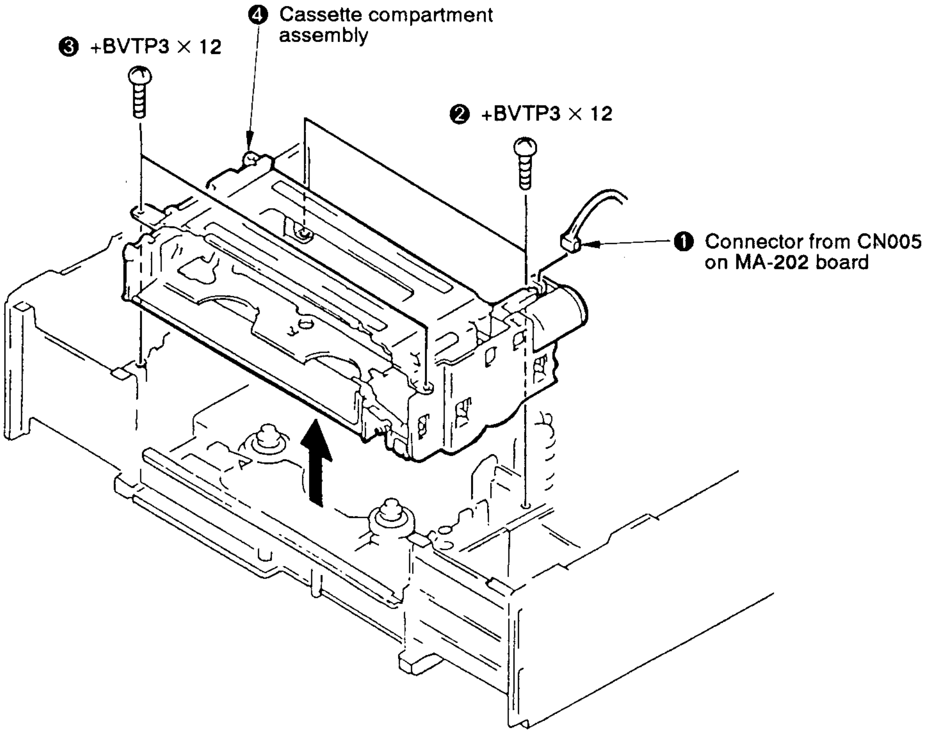

Four claws
❶ CN902 (MF-245 board)
CN703, 704 (PT-97 board)
MF-246 board
Ⓑ
Ⓐ
❷ +BVTP3 × 12

❸ Disconnect connectors as shown above and remove MF-246 board

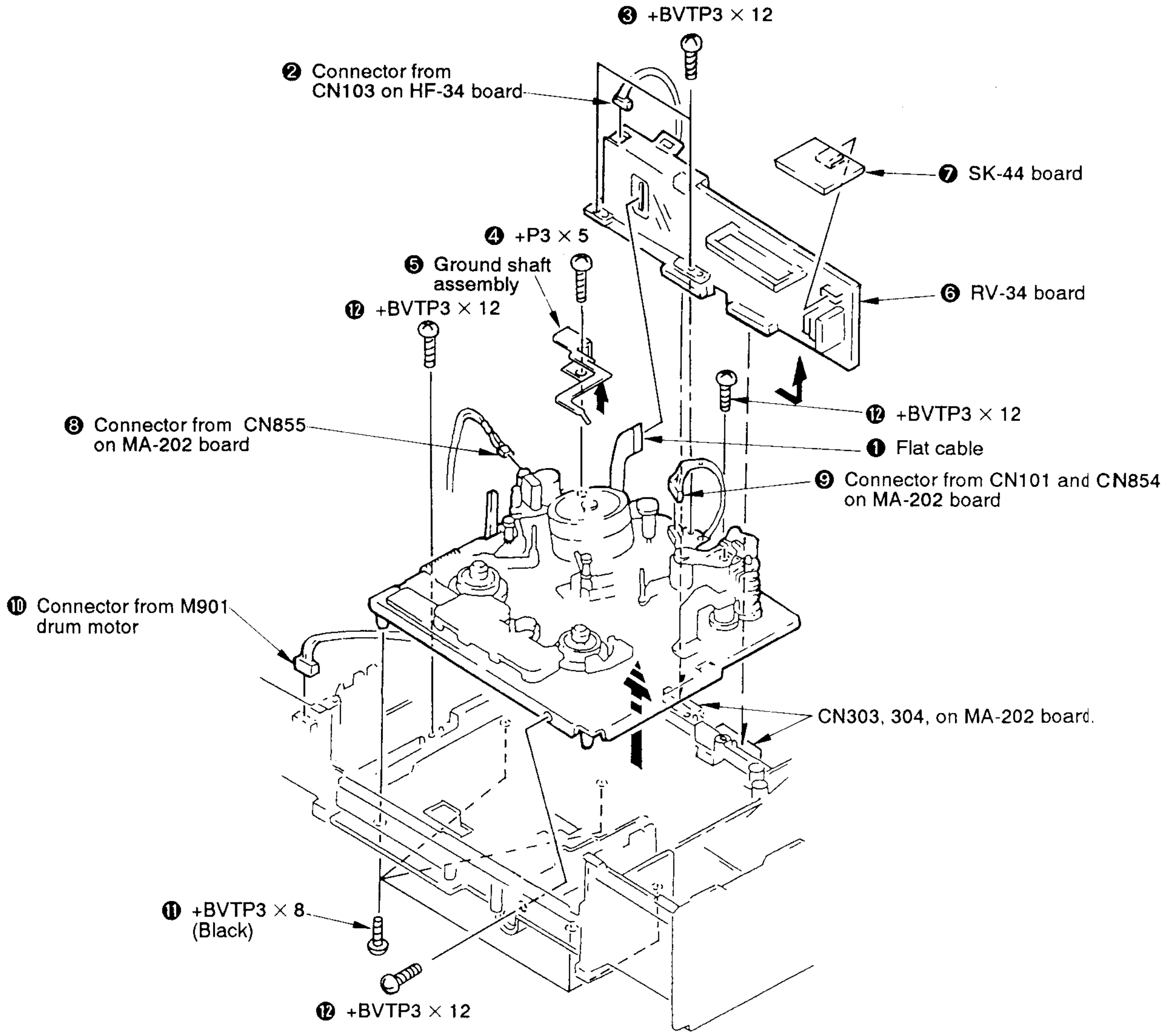
2-5. MF-245 BOARD


❷ Two claws
CN402 (MA-202 board)
❶ +BVPB3 × 12
MF-245 board
Ⓑ Ⓐ
❸ Disconnect connector as shown above and remove MF-245 board.

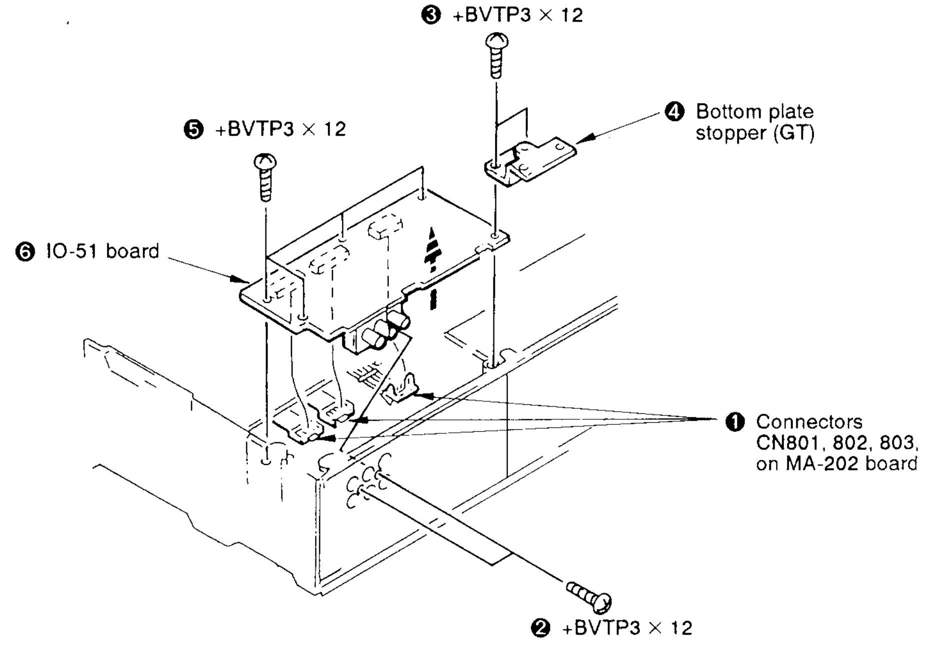
2-6. CASSETTE COMPARTMENT ASSEMBLY


❹ Cassette compartment assembly
❸ +BVTP3 × 12
❷ +BVTP3 × 12
❶ Connector from CN005 on MA-202 board

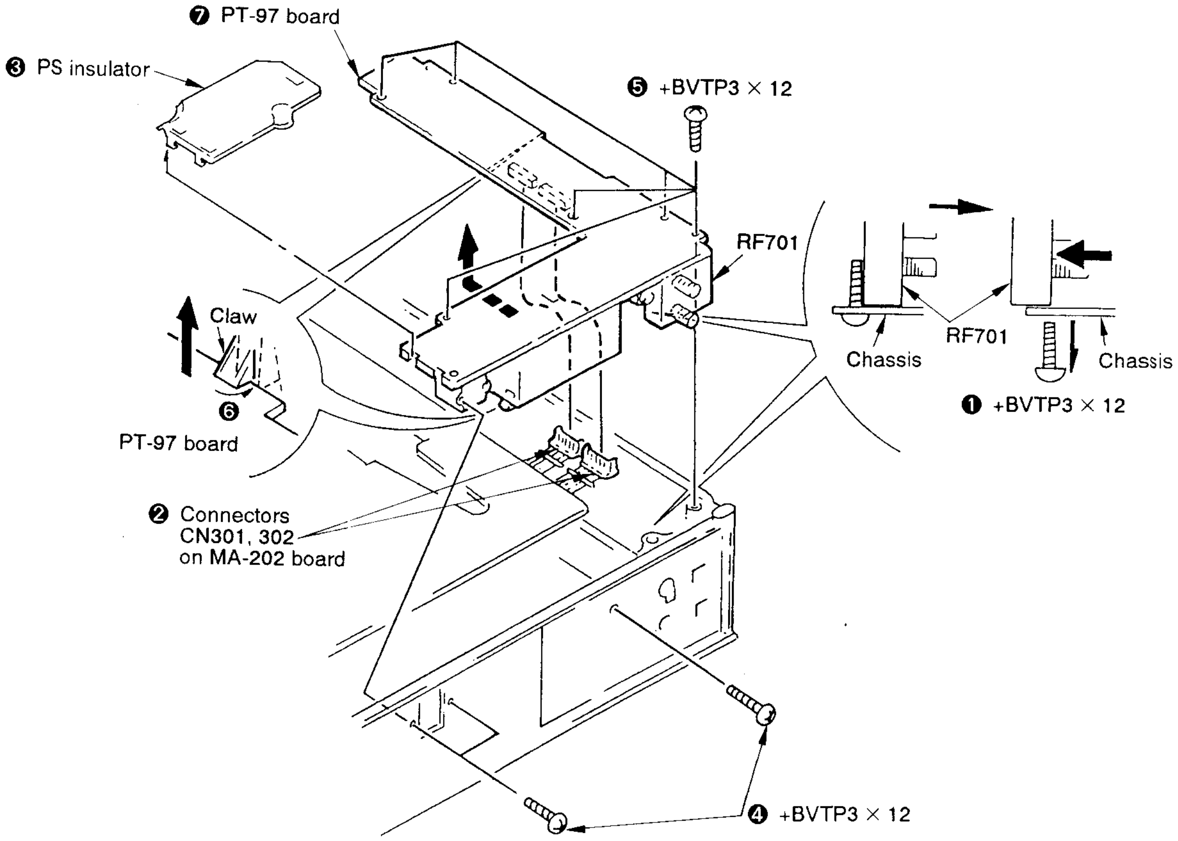
2-7. RV-34, SK-44 BOARDS AND MD ASSEMBLY


❸ +BVTP3 × 12
❷ Connector from CN103 on HF-34 board
❼ SK-44 board
❹ +P3 × 5
❺ Ground shaft assembly
⓬ +BVTP3 × 12
❻ RV-34 board
❽ Connector from CN855 on MA-202 board
⓬ +BVTP3 × 12
❶ Flat cable
❾ Connector from CN101 and CN854 on MA-202 board
❿ Connector from M901 drum motor
CN303, 304, on MA-202 board.
⓫ +BVTP3 × 8 (Black)
⓬ +BVTP3 × 12

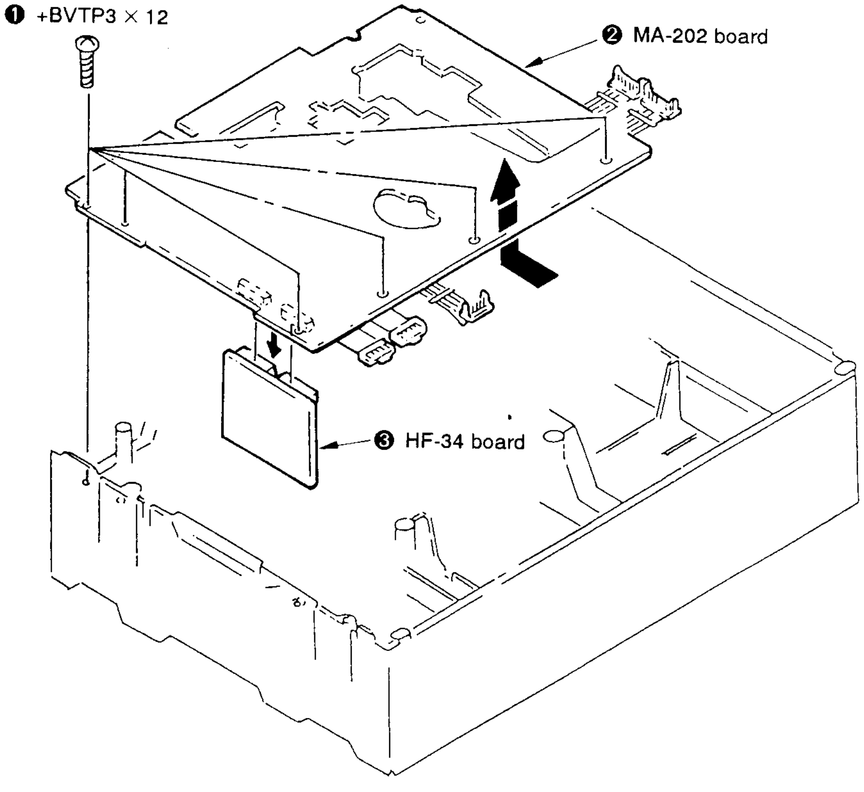
2-8. IO-51 BOARD


❸ +BVTP3 × 12
❹ Bottom plate stopper (GT)
❺ +BVTP3 × 12
❻ IO-51 board
❶ Connectors CN801, 802, 803, on MA-202 board
❷ +BVTP3 × 12

2-9. PT-97 BOARD

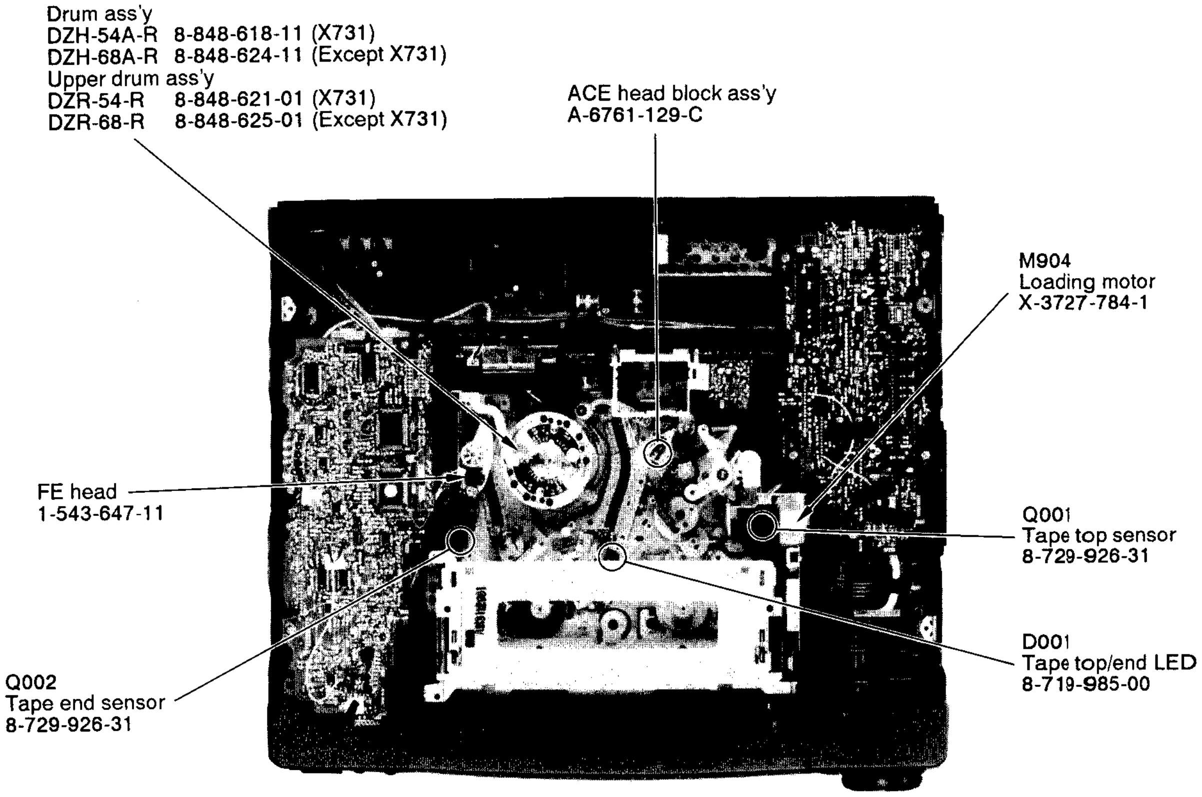

❼ PT-97 board
❸ PS insulator
❺ +BVTP3 × 12
RF701
Claw
❻
PT-97 board
❷ Connectors
CN301, 302
on MA-202 board
RF701
Chassis
Chassis
❶ +BVTP3 × 12
❹ +BVTP3 × 12

2-10. MA-202 AND HF-34 BOARDS

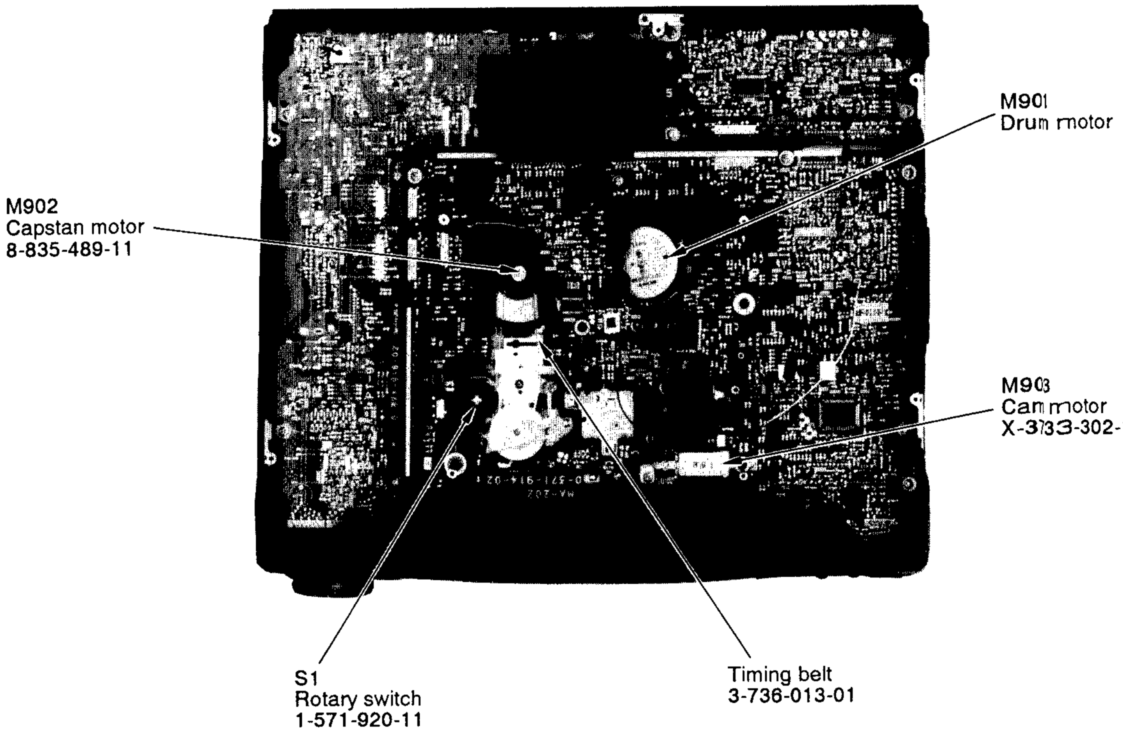

❶ +BVTP3 × 12
❷ MA-202 board
❸ HF-34 board

2-11. INTERNAL VIEWS

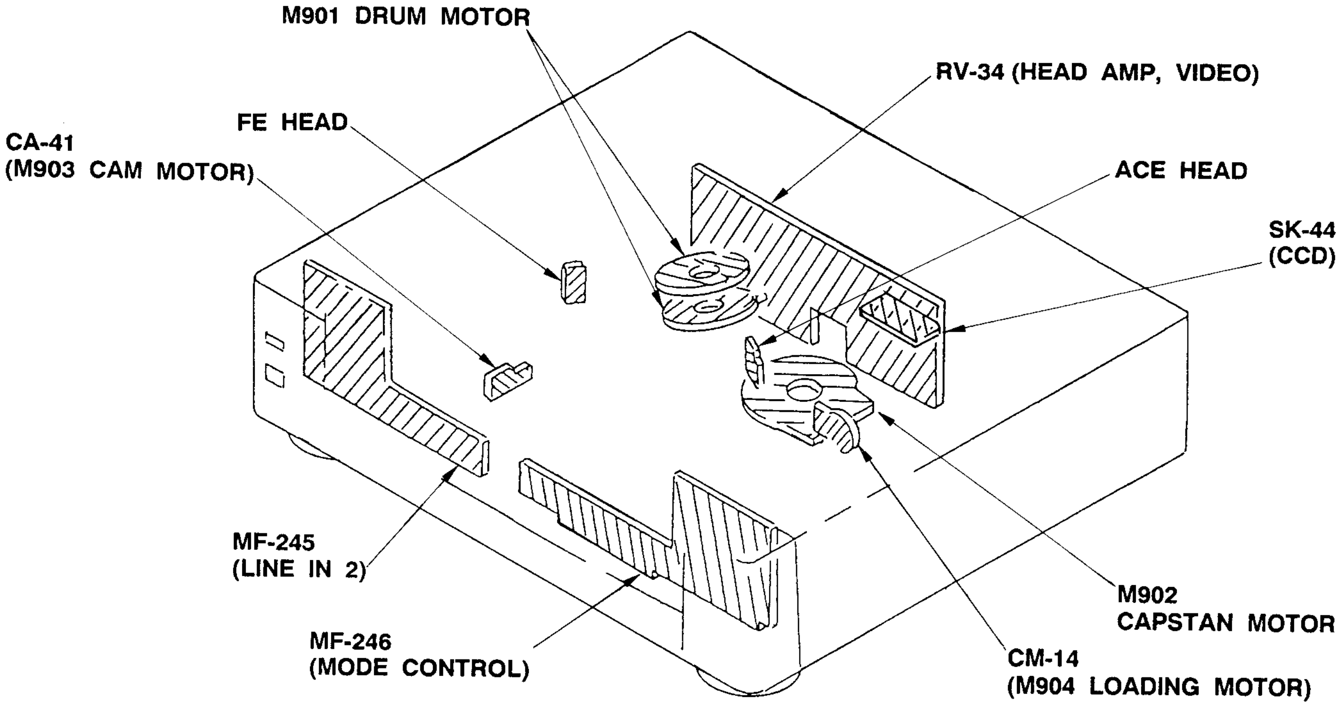
– Top Side –

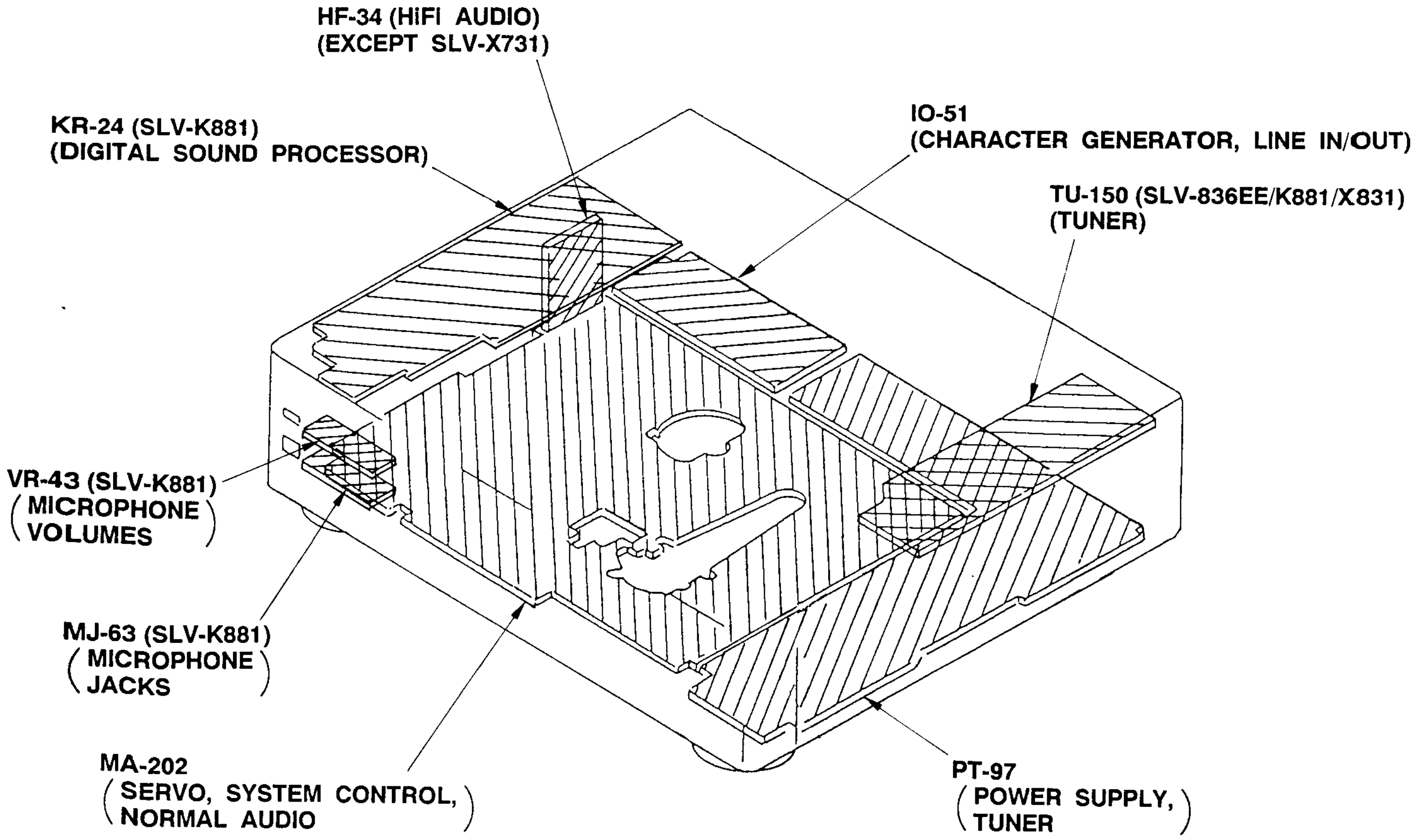

Drum ass'y
DZH-54A-R 8-848-618-11 (X731)
DZH-68A-R 8-848-624-11 (Except X731)
Upper drum ass'y
DZR-54-R 8-848-621-01 (X731)
DZR-68-R 8-848-625-01 (Except X731)
ACE head block ass'y
A-6761-129-C
M904
Loading motor
X-3727-784-1
FE head
1-543-647-11
Q001
Tape top sensor
8-729-926-31
D001
Tape top/end LED
8-719-985-00
Q002
Tape end sensor
8-729-926-31

– Bottom Side –


M901
Drum motor
M902
Capstan motor
8-835-489-11
M903
Cam motor
X-3733-302-1
S1
Rotary switch
1-571-920-11
Timing belt
3-736-013-01

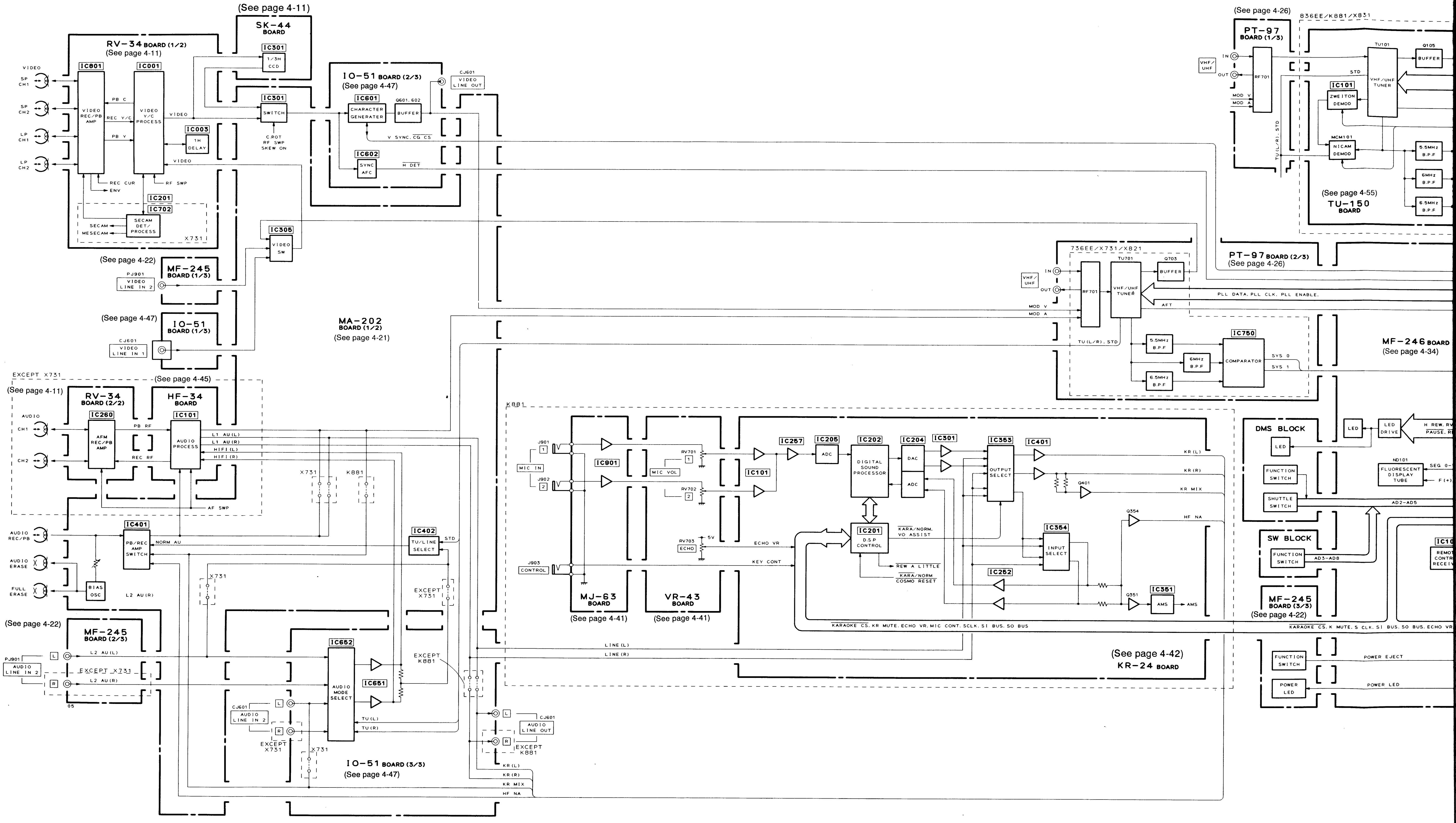
2-12. CIRCUIT BOARDS LOCATION

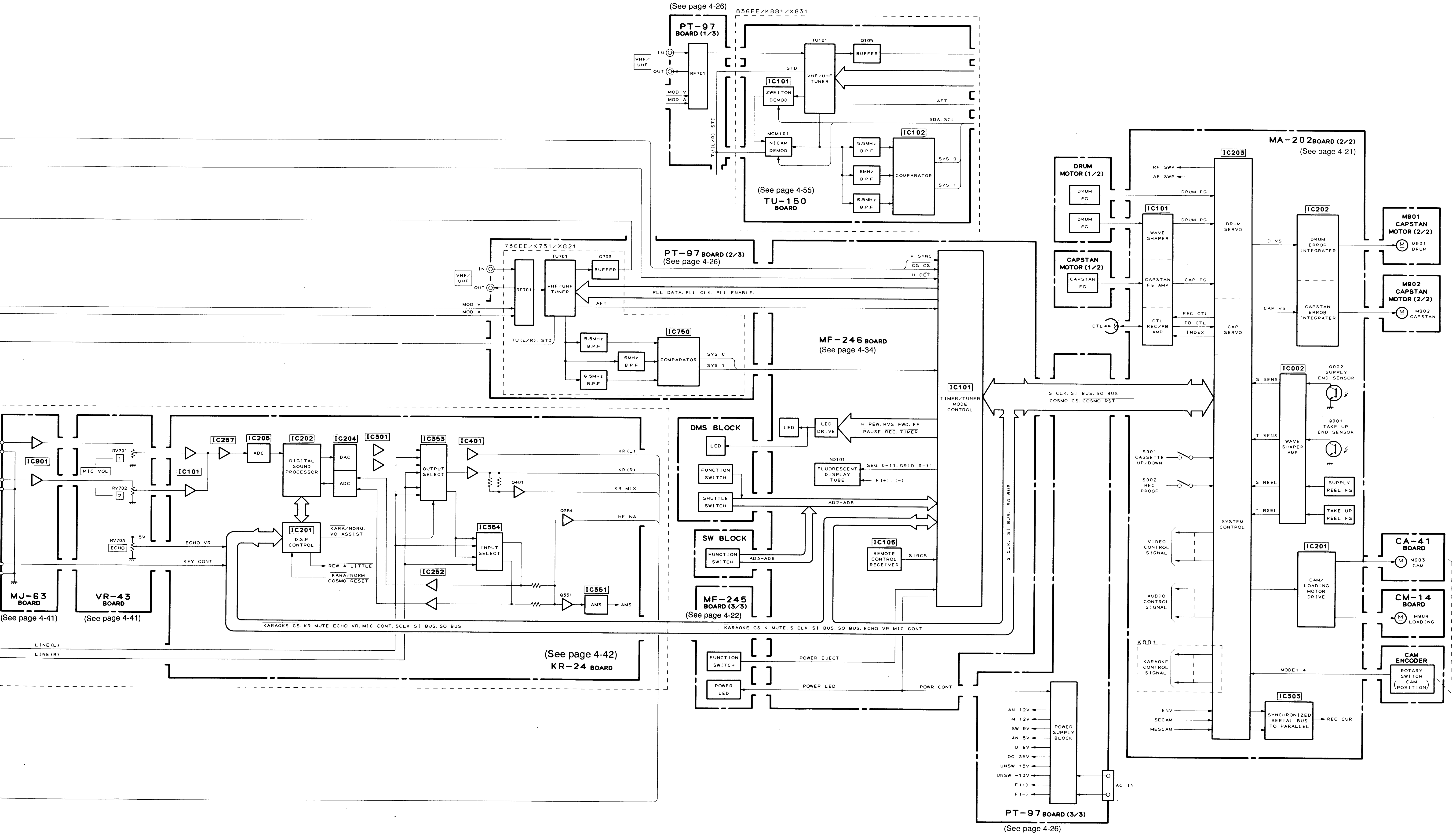

M901 DRUM MOTOR
RV-34 (HEAD AMP, VIDEO)
FE HEAD
CA-41
(M903 CAM MOTOR)
ACE HEAD
SK-44
(CCD)
MF-245
(LINE IN 2)
MF-246
(MODE CONTROL)
M902
CAPSTAN MOTOR
CM-14
(M904 LOADING MOTOR)


HF-34 (HiFi AUDIO)
(EXCEPT SLV-X731)
KR-24 (SLV-K881)
(DIGITAL SOUND PROCESSOR)
IO-51
(CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831)
(TUNER)
VR-43 (SLV-K881)
(MICROPHONE VOLUMES)
MJ-63 (SLV-K881)
(MICROPHONE JACKS)
MA-202
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97
(POWER SUPPLY, TUNER)

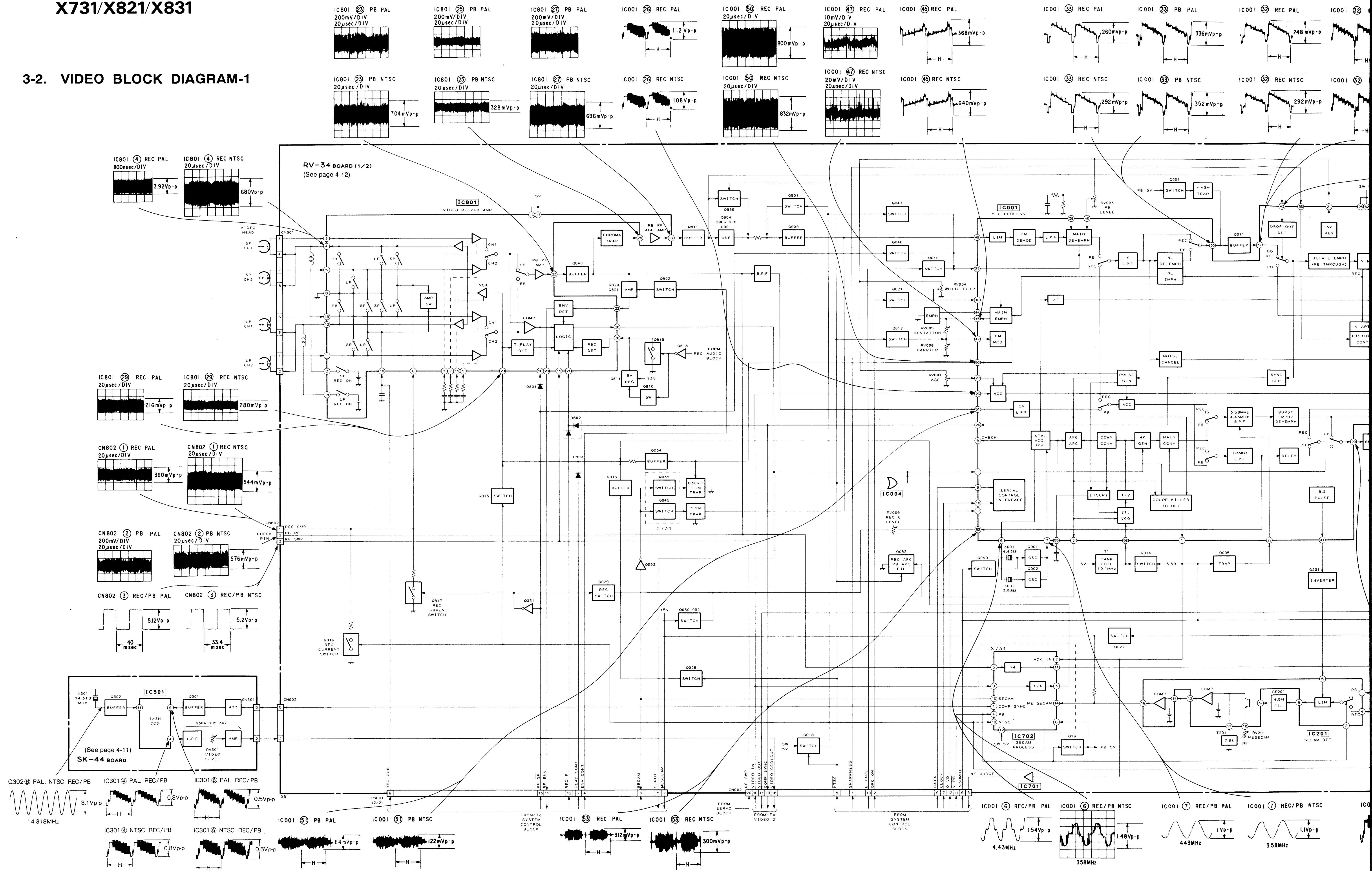
SECTION 3
BLOCK DIAGRAMS

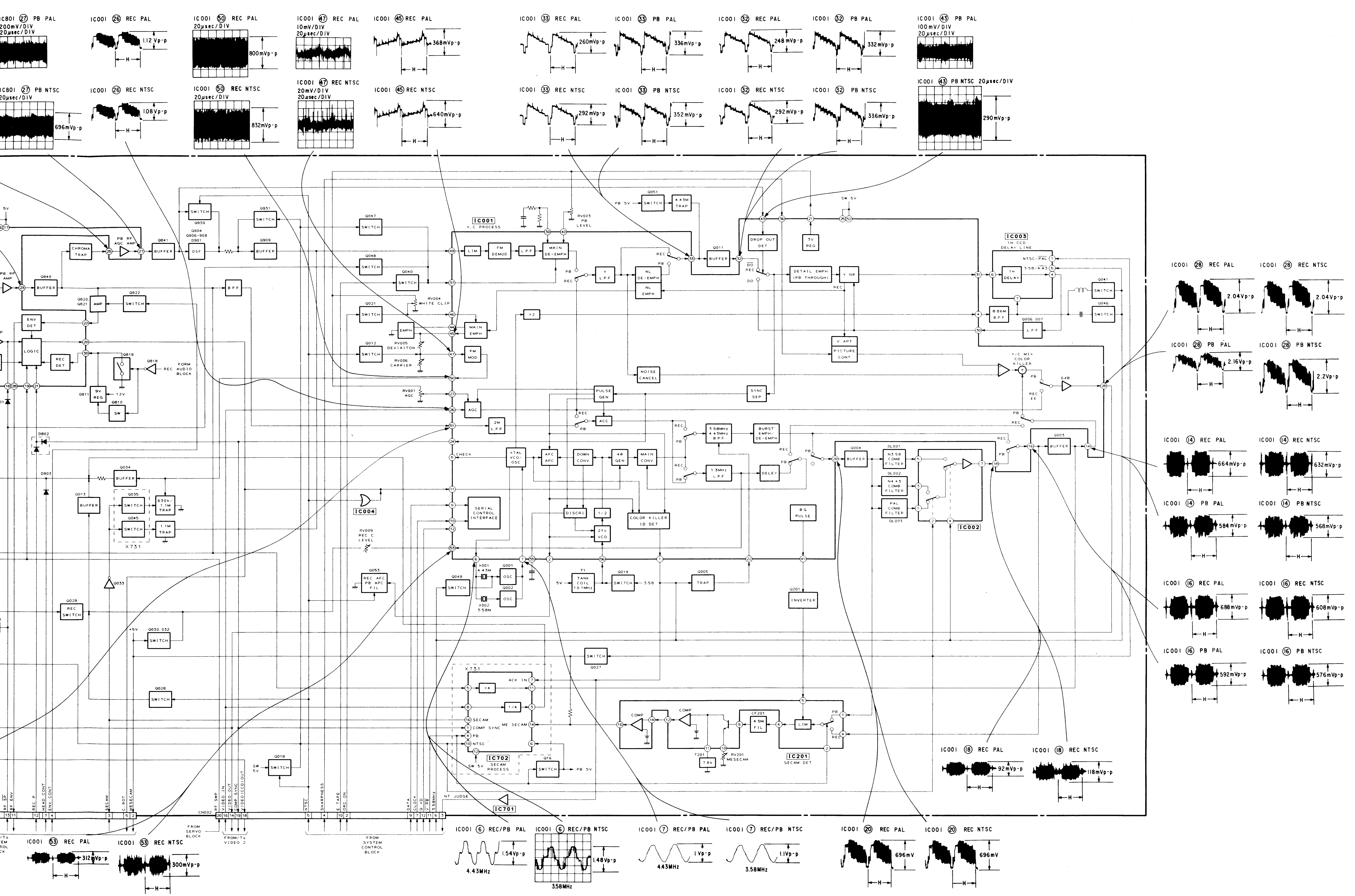
3-1. OVERALL BLOCK DIAGRAM


(See page 4-11)
SK-44 BOARD
IC301 1/3H CCD
IC301 SWITCH
C.ROT RF SWP SKEW ON
RV-34 BOARD (1/2)
(See page 4-11)
VIDEO
SP CH1
SP CH2
LP CH1
LP CH2
IC801 VIDEO REC/PB AMP
IC001 VIDEO Y/C PROCESS
PB C
REC Y/C
PB Y
VIDEO
IC003 1H DELAY
REC CUR
ENV
RF SWP
IC201
IC702
SECAM DET/PROCESS
SECAM
MESECAM
X731
IO-51 BOARD (2/3)
(See page 4-47)
IC601 CHARACTER GENERATER
Q601, 602 BUFFER
CJ601 VIDEO LINE OUT
IC602 SYNC AFC
V SYNC, CG CS
H DET
IC305 VIDEO SW
(See page 4-22)
MF-245 BOARD (1/3)
PJ901 VIDEO LINE IN 2
(See page 4-47)
IO-51 BOARD (1/3)
CJ601 VIDEO LINE IN 1
MA-202 BOARD (1/2)
(See page 4-21)
EXCEPT X731
(See page 4-45)
(See page 4-11)
RV-34 BOARD (2/2)
IC260 AFM REC/PB AMP
AUDIO CH1
CH2
PB RF
REC RF
HF-34 BOARD
IC101 AUDIO PROCESS
L1 AU(L)
L1 AU(R)
HIFI(L)
HIFI(R)
AF SWP
X731
K881
AUDIO REC/PB
AUDIO ERASE
FULL ERASE
IC401 PB/REC AMP SWITCH
NORM AU
BIAS OSC
L2 AU(R)
IC402 TU/LINE SELECT
STD
X731
EXCEPT X731
(See page 4-22)
MF-245 BOARD (2/3)
PJ901 AUDIO LINE IN 2
L
R
L2 AU(L)
EXCEPT X731
L2 AU(R)
05
IC652 AUDIO MODE SELECT
IC651
EXCEPT K881
CJ601 AUDIO LINE IN 2
EXCEPT X731
X731
TU(L)
TU(R)
IO-51 BOARD (3/3)
(See page 4-47)
CJ601 AUDIO LINE OUT
EXCEPT K881
KR(L)
KR(R)
KR MIX
HF NA
LINE(L)
LINE(R)
K881
J901 MIC IN
J902
IC901
MIC VOL
RV701
RV702
RV703 ECHO
5V
J903 CONTROL
MJ-63 BOARD
(See page 4-41)
VR-43 BOARD
(See page 4-41)
IC257
IC101
IC205 ADC
IC202 DIGITAL SOUND PROCESSOR
IC204 DAC ADC
IC301
IC353 OUTPUT SELECT
IC401
KR(L)
KR(R)
Q401
KR MIX
Q354
HF NA
IC201 D.S.P CONTROL
KARA/NORM, VO ASSIST
ECHO VR
KEY CONT
REW A LITTLE
KARA/NORM
COSMO RESET
IC354 INPUT SELECT
IC252
Q351
IC351 AMS
AMS
KARAOKE CS, KR MUTE, ECHO VR, MIC CONT, SCLK, SI BUS, SO BUS
(See page 4-42)
KR-24 BOARD
(See page 4-26)
836EE/K881/X831
PT-97 BOARD (1/3)
VHF/UHF
IN
OUT
RF701
MOD V
MOD A
TU(L/R), STD
TU101 VHF/UHF TUNER
Q105 BUFFER
STD
IC101 ZWEITON DEMOD
MCM101 NICAM DEMOD
5.5MHz B.P.F
6MHz B.P.F
6.5MHz B.P.F
(See page 4-55)
TU-150 BOARD
PT-97 BOARD (2/3)
(See page 4-26)
736EE/X731/X821
TU701 VHF/UHF TUNER
Q703 BUFFER
RF701
PLL DATA, PLL CLK, PLL ENABLE
AFT
MOD V
MOD A
TU(L/R), STD
5.5MHz B.P.F
6MHz B.P.F
6.5MHz B.P.F
IC750 COMPARATOR
SYS 0
SYS 1
MF-246 BOARD
(See page 4-34)
DMS BLOCK
LED
FUNCTION SWITCH
SHUTTLE SWITCH
LED
LED DRIVE
H REW, RV
PAUSE, R
ND101 FLUORESCENT DISPLAY TUBE
SEG 0-
F(+)
AD2-AD5
SW BLOCK
FUNCTION SWITCH
AD3-AD8
IC1
REMO CONTR RECEI
MF-245 BOARD (3/3)
(See page 4-22)
KARAOKE CS, K MUTE, S CLK, SI BUS, SO BUS, ECHO VR
FUNCTION SWITCH
POWER EJECT
POWER LED
POWER LED

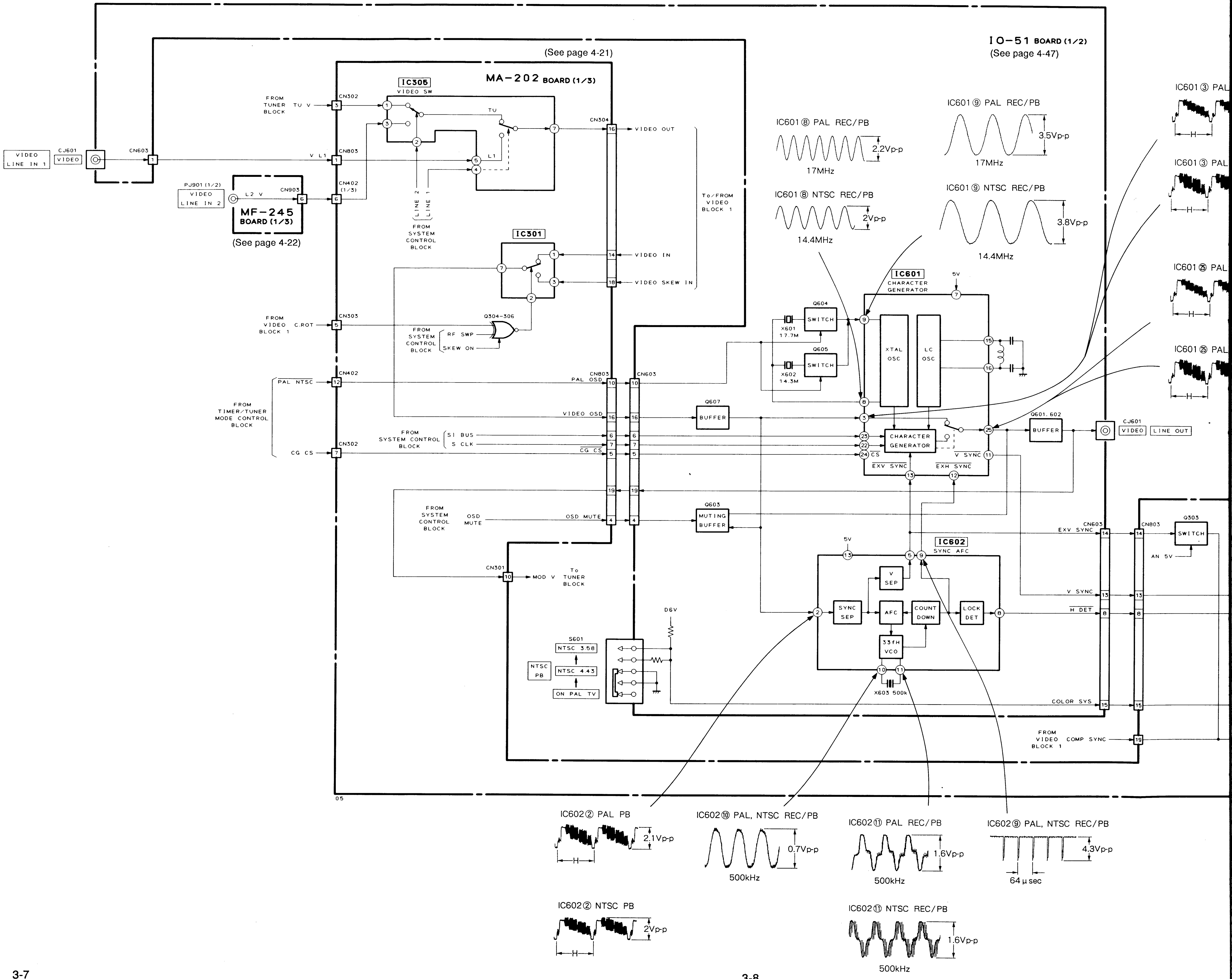

(See page 4-26)
PT-97 BOARD (1/3)
836EE/K881/X831
VHF/UHF
IN
OUT
RF701
MOD V
MOD A
TU101
Q105
BUFFER
STD
VHF/UHF TUNER
IC101
ZWEITON DEMOD
AFT
SDA. SCL
MCM101
NICAM DEMOD
IC102
5.5MHz B.P.F
6MHz B.P.F
6.5MHz B.P.F
COMPARATOR
SYS 0
SYS 1
TU(L/R). STD
(See page 4-55)
TU-150 BOARD
PT-97 BOARD (2/3)
(See page 4-26)
736EE/X731/X821
TU701
Q703
V SYNC
CG CS
H DET
PLL DATA. PLL CLK. PLL ENABLE.
IC750
MF-246 BOARD
(See page 4-34)
IC101
TIMER/TUNER MODE CONTROL
S CLK. SI BUS. SO BUS
COSMO CS. COSMO RST
DMS BLOCK
LED
LED DRIVE
H REW. RVS. FWD. FF
PAUSE. REC. TIMER
FUNCTION SWITCH
SHUTTLE SWITCH
ND101
FLUORESCENT DISPLAY TUBE
SEG 0-11. GRID 0-11
F(+). (-)
AD2-AD5
SW BLOCK
AD3-AD8
IC105
REMOTE CONTROL RECEIVER
SIRCS
MF-245 BOARD (3/3)
(See page 4-22)
S CLK. SI BUS. SO BUS
IC801
MIC VOL
RV701
RV702
RV703
ECHO
5V
ECHO VR
KEY CONT
IC101
IC257
IC205
ADC
IC202
DIGITAL SOUND PROCESSOR
IC204
DAC
ADC
IC301
IC353
OUTPUT SELECT
IC401
KR(L)
KR(R)
KR MIX
Q401
Q354
HF NA
IC201
D.S.P CONTROL
KARA/NORM. VO ASSIST
REW A LITTLE
KARA/NORM
COSMO RESET
IC354
INPUT SELECT
IC252
Q351
IC351
AMS
MJ-63 BOARD
(See page 4-41)
VR-43 BOARD
(See page 4-41)
KARAOKE CS. KR MUTE. ECHO VR. MIC CONT. SCLK. SI BUS. SO BUS
KARAOKE CS. K MUTE. S CLK. SI BUS. SO BUS. ECHO VR. MIC CONT
LINE(L)
LINE(R)
(See page 4-42)
KR-24 BOARD
FUNCTION SWITCH
POWER EJECT
POWER LED
POWR CONT
AN 12V
M 12V
SW 9V
AN 5V
D 6V
DC 35V
UNSW 13V
UNSW -13V
F(+)
F(-)
POWER SUPPLY BLOCK
AC IN
PT-97 BOARD (3/3)
(See page 4-26)
MA-202 BOARD (2/2)
(See page 4-21)
DRUM MOTOR (1/2)
DRUM FG
DRUM PG
CAPSTAN MOTOR (1/2)
CAPSTAN FG
IC101
WAVE SHAPER
CAPSTAN FG AMP
CTL REC/PB AMP
CTL
RF SWP
AF SWP
DRUM FG
DRUM PG
CAP FG
REC CTL
PB CTL
INDEX
IC203
DRUM SERVO
CAP SERVO
SYSTEM CONTROL
D VS
CAP VS
IC202
DRUM ERROR INTEGRATER
CAPSTAN ERROR INTEGRATER
M901 CAPSTAN MOTOR (2/2)
M901 DRUM
M902 CAPSTAN MOTOR (2/2)
M902 CAPSTAN
IC002
Q002 SUPPLY END SENSOR
Q001 TAKE UP END SENSOR
S SENS
T SENS
S REEL
T REEL
WAVE SHAPER AMP
SUPPLY REEL FG
TAKE UP REEL FG
S001 CASSETTE UP/DOWN
S002 REC PROOF
VIDEO CONTROL SIGNAL
AUDIO CONTROL SIGNAL
K881
KARAOKE CONTROL SIGNAL
IC201
CAM/LOADING MOTOR DRIVE
CA-41 BOARD
M903 CAM
CM-14 BOARD
M904 LOADING
CAM ENCODER
ROTARY SWITCH (CAM POSITION)
MODE1-4
ENV
SECAM
MESCAM
IC303
SYNCHRONIZED SERIAL BUS TO PARALLEL
REC CUR

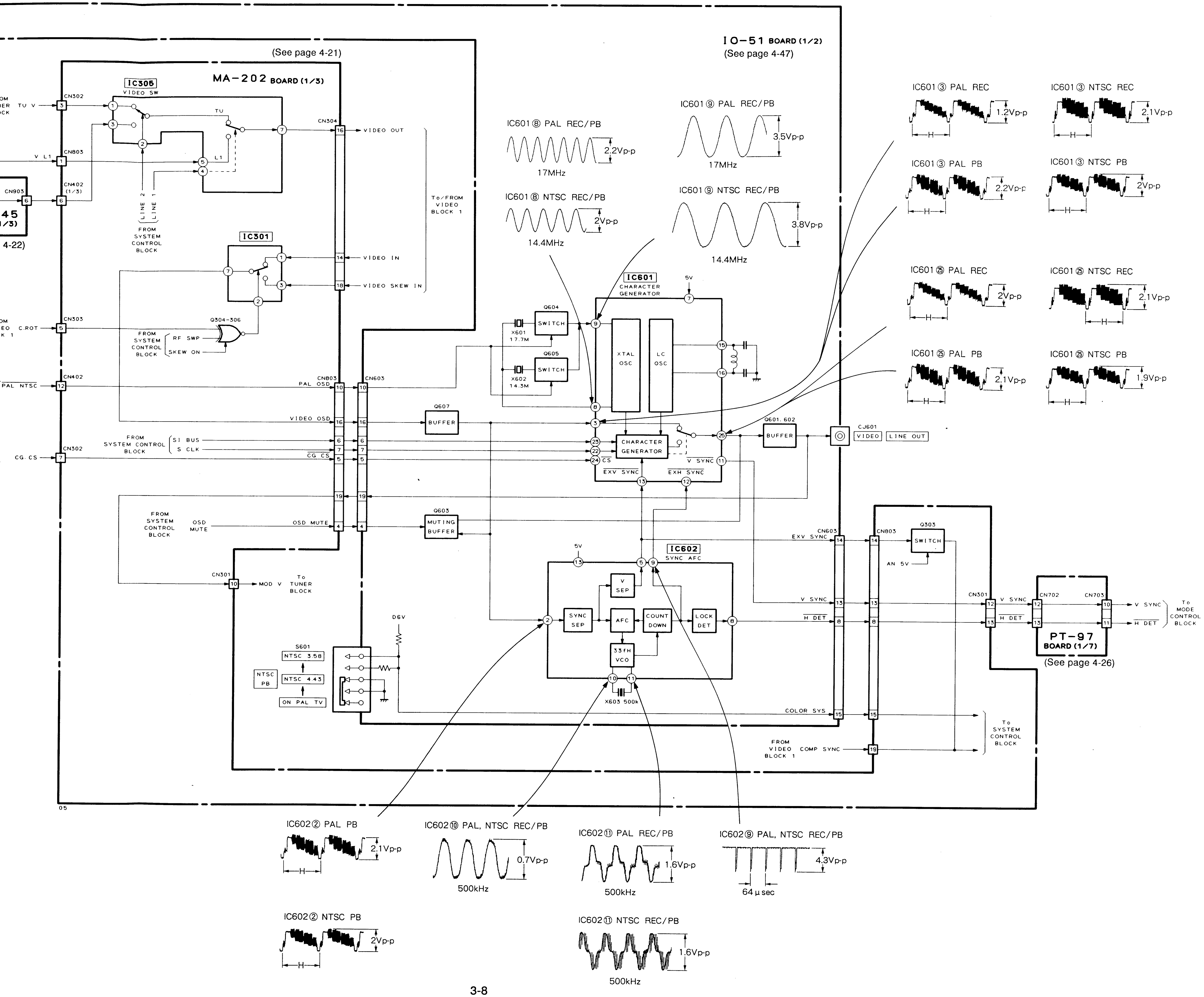
3-2. VIDEO BLOCK DIAGRAM-1


IC801 ㉓ PB PAL 200mV/DIV 20μsec/DIV
IC801 ㉕ PB PAL 200mV/DIV 20μsec/DIV
IC801 ㉗ PB PAL 200mV/DIV 20μsec/DIV
IC001 ㉖ REC PAL 1.12Vp-p
IC001 (50) REC PAL 20μsec/DIV 800mVp-p
IC001 (47) REC PAL 10mV/DIV 20μsec/DIV
IC001 (45) REC PAL 368mVp-p
IC001 ㉝ REC PAL 260mVp-p
IC001 ㉝ PB PAL 336mVp-p
IC001 ㉜ REC PAL 248mVp-p
IC801 ㉓ PB NTSC 20μsec/DIV 704mVp-p
IC801 ㉕ PB NTSC 20μsec/DIV 328mVp-p
IC801 ㉗ PB NTSC 20μsec/DIV 696mVp-p
IC001 ㉖ REC NTSC 108Vp-p
IC001 (50) REC NTSC 20μsec/DIV 832mVp-p
IC001 (47) REC NTSC 20mV/DIV 20μsec/DIV
IC001 (45) REC NTSC 640mVp-p
IC001 ㉝ REC NTSC 292mVp-p
IC001 ㉝ PB NTSC 352mVp-p
IC001 ㉜ REC NTSC 292mVp-p
IC801 ④ REC PAL 800nsec/DIV 3.92Vp-p
IC801 ④ REC NTSC 20μsec/DIV 680Vp-p
IC801 ㉙ REC PAL 20μsec/DIV 216mVp-p
IC801 ㉙ REC NTSC 20μsec/DIV 280mVp-p
CN802 ① REC PAL 20μsec/DIV 360mVp-p
CN802 ① REC NTSC 20μsec/DIV 544mVp-p
CN802 ② PB PAL 200mV/DIV 20μsec/DIV
CN802 ② PB NTSC 20μsec/DIV 576mVp-p
CN802 ③ REC/PB PAL 5.12Vp-p 40 msec
CN802 ③ REC/PB NTSC 5.2Vp-p 33.4 msec
RV-34 BOARD (1/2)
(See page 4-12)
IC801 VIDEO REC/PB AMP
VIDEO HEAD
SP CH1
SP CH2
LP CH1
LP CH2
CN801
PB RF AGC AMP
SP PB RF AMP
CHROMA TRAP
BUFFER
Q841 BUFFER
Q840 BUFFER
Q820, Q821 AMP
Q822 SWITCH
ENV DET
COMP
LOGIC
T PLAY DET
REC DET
AMP SW
VCA
Q819
Q818
FORM AUDIO BLOCK
9V REG
Q811
Q810 SW
D801
D802
D803
Q939 SWITCH
Q904 Q906-908 D901 DSF
Q931 SWITCH
Q909 BUFFER
B.P.F
Q034 BUFFER
Q013 BUFFER
Q035 SWITCH
Q045 SWITCH
630k/1.1M TRAP
1.1M TRAP
X731
Q815 SWITCH
Q817 REC CURRENT SWITCH
Q816 REC CURRENT SWITCH
Q029 REC SWITCH
Q031
Q033
Q030, 032 SWITCH
Q028 SWITCH
CN802
CHECK PIN
REC CUR
PB RF
RF SWP
IC001 Y.C PROCESS
Q047 SWITCH
Q048 SWITCH
Q040 SWITCH
Q021 SWITCH
Q012 SWITCH
EMPH
RV004 WHITE CLIP
RV005 DEVIAITON
RV006 CARRIER
RV001 AGC
RV003 PB LEVEL
LIM
FM DEMOD
L.P.F
MAIN DE-EMPH
MAIN EMPH
FM MOD
AGC
2M L.P.F
CHECK
XTAL VCO/OSC
AFC APC
DOWN CONV
4Φ GEN
MAIN CONV
SERIAL CONTROL INTERFACE
DISCRI
1/2
2fc VCO
COLOR KILLER ID DET
NOISE CANCEL
SYNC SEP
PULSE GEN
ACC
3.58MHz 4.43MHz B.P.F
BURST EMPH/DE-EMPH
1.3MHz L.P.F
DELEY
Y L.P.F
NL DE-EMPH
NL EMPH
×2
Q051 SWITCH
4.43M TRAP
PB 5V
Q011 BUFFER
DROP OUT DET
3V REG
DETAIL EMPH (PB THROUGH)
V APT
PICTURE CONT
BG PULSE
Q201 INVERTER
IC004
RV009 REC C LEVEL
Q053 REC AFC PB APC FIL
Q049 SWITCH
X001 4.43M
X002 3.58M
Q001 OSC
Q002 OSC
T1 TANK COIL 10.1MHz
Q014 SWITCH
Q005 TRAP
Q027 SWITCH
X731
ACK IN
×4
1/4
SECAM
COMP SYNC
ME SECAM
PB
NTSC
IC702 SECAM PROCESS
Q16 SWITCH
PB 5V
SW 5V
Q018 SWITCH
IC701
NT JUDGE
COMP
CF201 4.5M FIL
LIM
T201 7.8k
RV201 MESECAM
IC201 SECAM DET
CN003
CN001 (2/2)
REC CUR
RF SW
RF ENV
REC P
HEAD CONT
ENV CONT
SECAM
C.ROT
MESECAM
CN002
RF SWP
VIDEO IN
VIDEO OUT
COMP SYNC
VIDEO (CCD) OUT
NTSC
SHARPNESS
E.TAPE
CL ON
DATA
CLOCK
V.VD
3.58MHz
FROM/To SYSTEM CONTROL BLOCK
FROM SERVO BLOCK
FROM/To VIDEO 2
FROM SYSTEM CONTROL BLOCK
IC301
X301 14.318MHz
Q302 BUFFER
1/3H CCD
Q301 BUFFER
ATT
L.P.F
AMP
Q304, 305, 307
RV301 VIDEO LEVEL
CN301
(See page 4-11)
SK-44 BOARD
Q302 Ⓑ PAL, NTSC REC/PB 3.1Vp-p 14.318MHz
IC301 ④ PAL REC/PB 0.8Vp-p
IC301 ⑥ PAL REC/PB 0.5Vp-p
IC301 ④ NTSC REC/PB 0.8Vp-p
IC301 ⑥ NTSC REC/PB 0.5Vp-p
IC001 (51) PB PAL 84mVp-p
IC001 (51) PB NTSC 122mVp-p
IC001 (53) REC PAL 312mVp-p
IC001 (53) REC NTSC 300mVp-p
IC001 ⑥ REC/PB PAL 1.54Vp-p 4.43MHz
IC001 ⑥ REC/PB NTSC 1.48Vp-p 3.58MHz
IC001 ⑦ REC/PB PAL 1Vp-p 4.43MHz
IC001 ⑦ REC/PB NTSC 1.1Vp-p 3.58MHz

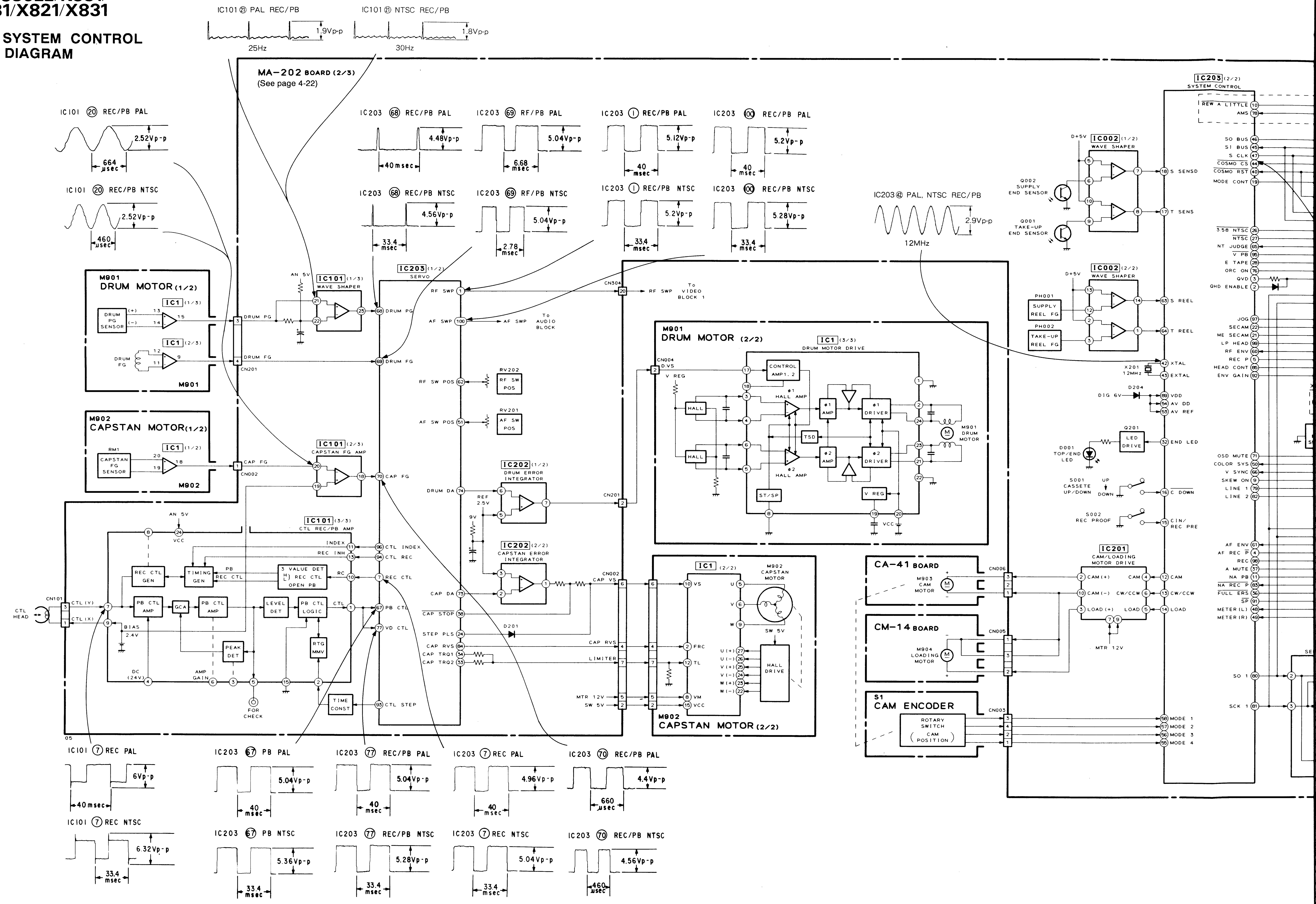

IC801 (27) PB PAL 200mV/DIV 20μsec/DIV
IC001 (26) REC PAL 1.12Vp-p
IC001 (50) REC PAL 20μsec/DIV 800mVp-p
IC001 (47) REC PAL 10mV/DIV 20μsec/DIV
IC001 (45) REC PAL 368mVp-p
IC001 (33) REC PAL 260mVp-p
IC001 (33) PB PAL 336mVp-p
IC001 (32) REC PAL 248mVp-p
IC001 (32) PB PAL 332mVp-p
IC001 (43) PB PAL 100mV/DIV 20μsec/DIV
IC801 (27) PB NTSC 20μsec/DIV 696mVp-p
IC001 (26) REC NTSC 1.08Vp-p
IC001 (50) REC NTSC 20μsec/DIV 832mVp-p
IC001 (47) REC NTSC 20mV/DIV 20μsec/DIV
IC001 (45) REC NTSC 640mVp-p
IC001 (33) REC NTSC 292mVp-p
IC001 (33) PB NTSC 352mVp-p
IC001 (32) REC NTSC 292mVp-p
IC001 (32) PB NTSC 336mVp-p
IC001 (43) PB NTSC 20μsec/DIV 290mVp-p
H
IC001 Y, C PROCESS
IC002
IC003 1H CCD DELAY LINE
IC004
IC201 SECAM DET
IC701
IC702 SECAM PROCESS
X731
CHROMA TRAP
PB RF AGC AMP
PB RF AMP
BUFFER
SWITCH
DSF
LIM
FM DEMOD
L.P.F
MAIN DE-EMPH
Y L.P.F
NL DE-EMPH
NL EMPH
DROP OUT DET
5V REG
DETAIL EMPH (PB THROUGH)
Y NR
Y APT
PICTURE CONT
NOISE CANCEL
SYNC SEP
PULSE GEN
ACC
AGC
2M L.P.F
XTAL VCO/OSC
AFC APC
DOWN CONV
4φ GEN
MAIN CONV
DISCRI
1/2
2fc VCO
COLOR KILLER ID DET
SERIAL CONTROL INTERFACE
MAIN EMPH
EMPH
FM MOD
x2
3.58MHz 4.43MHz B.P.F
BURST EMPH/DE-EMPH
1.3MHz L.P.F
DELEY
B.G PULSE
INVERTER
TRAP
TANK COIL 10.1MHz
OSC
N3.58 COMB FILTER
N4.43 COMB FILTER
PAL COMB FILTER
1H DELAY
NTSC/PAL
3.58/4.43
8.86M B.P.F
Y/C MIX COLOR KILLER
6dB
ENV DET
LOGIC
REC DET
AMP
9V REG
SW
FORM AUDIO BLOCK
630k/1.1M TRAP
1.1M TRAP
REC AFC PB APC FIL
REC SWITCH
RV003 PB LEVEL
RV004 WHITE CLIP
RV005 DEVIAITON
RV006 CARRIER
RV001 AGC
RV009 REC C LEVEL
RV201 MESECAM
T201 7.8k
CF201 4.5M FIL
COMP
ACK IN
SECAM
COMP SYNC
ME SECAM
PB
NTSC
SW 5V
PB 5V
NT JUDGE
CHECK
X001 4.43M
X002 3.58M
Q001 Q002 Q003 Q004 Q005 Q011 Q012 Q013 Q014 Q016 Q018 Q021 Q027 Q028 Q029 Q030, 032 Q033 Q034 Q035 Q040 Q041 Q045 Q046 Q047 Q048 Q049 Q051 Q053 Q201 Q810 Q811 Q818 Q819 Q820, Q821 Q822 Q840 Q841 Q904 Q906-908 Q909 Q931 Q939 D802 D803 D901 DL001 DL002 DL003
CN002
RF SP
RF ENV
REC P
HEAD CONT
ENV CONT
SECAM
C.ROT
MESECAM
RF SWP
VIDEO IN
VIDEO OUT
COMP SYNC
VIDEO(CCD) OUT
NTSC
SHARPNESS
E. TAPE
OSC ON
DATA
CLOCK
G VD
V PB
3.58MHz
FROM SERVO BLOCK
FROM/TO VIDEO 2
FROM SYSTEM CONTROL BLOCK
IC001 (28) REC PAL 2.04Vp-p
IC001 (28) REC NTSC 2.04Vp-p
IC001 (28) PB PAL 2.16Vp-p
IC001 (28) PB NTSC 2.2Vp-p
IC001 (14) REC PAL 664mVp-p
IC001 (14) REC NTSC 632mVp-p
IC001 (14) PB PAL 584mVp-p
IC001 (14) PB NTSC 568mVp-p
IC001 (16) REC PAL 688mVp-p
IC001 (16) REC NTSC 608mVp-p
IC001 (16) PB PAL 592mVp-p
IC001 (16) PB NTSC 576mVp-p
IC001 (18) REC PAL 92mVp-p
IC001 (18) REC NTSC 118mVp-p
IC001 (53) REC PAL 312mVp-p
IC001 (53) REC NTSC 300mVp-p
IC001 (6) REC/PB PAL 1.54Vp-p 4.43MHz
IC001 (6) REC/PB NTSC 1.48Vp-p 3.58MHz
IC001 (7) REC/PB PAL 1Vp-p 4.43MHz
IC001 (7) REC/PB NTSC 1.1Vp-p 3.58MHz
IC001 (20) REC PAL 696mV
IC001 (20) REC NTSC 696mV

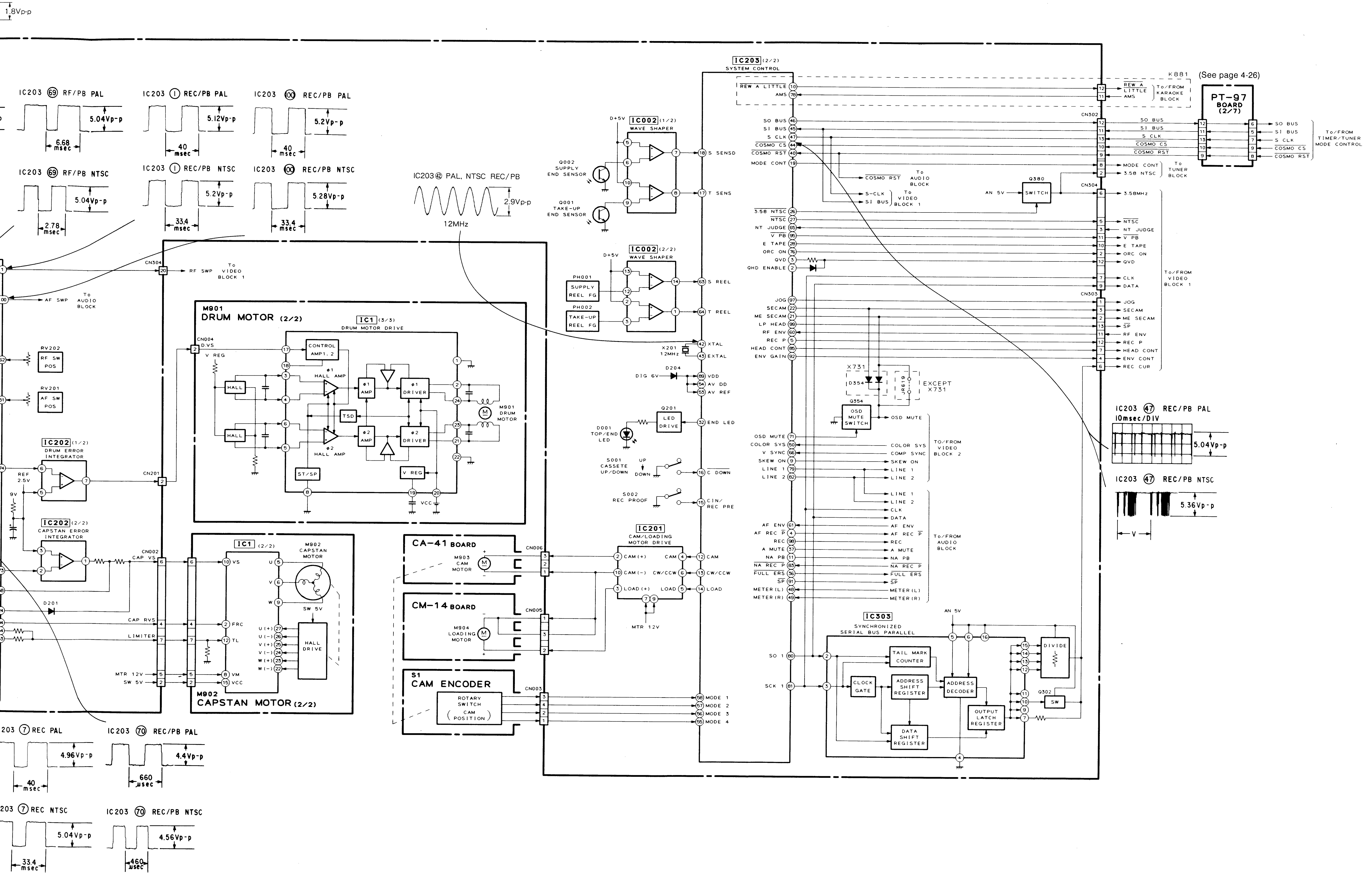
3-3. VIDEO BLOCK DIAGRAM-2


(See page 4-21)
MA-202 BOARD (1/3)
IC305
VIDEO SW
IC301
FROM TUNER BLOCK
TU V
CN302
CN304
VIDEO OUT
TU
L1
VIDEO LINE IN 1
CJ601
VIDEO
CN603
V L1
CN803
PJ901 (1/2)
VIDEO LINE IN 2
L2 V
CN903
MF-245 BOARD (1/3)
(See page 4-22)
CN402 (1/3)
LINE 2
LINE 1
FROM SYSTEM CONTROL BLOCK
To/FROM VIDEO BLOCK 1
VIDEO IN
VIDEO SKEW IN
FROM VIDEO BLOCK 1
C.ROT
CN303
Q304-306
RF SWP
SKEW ON
CN402
PAL NTSC
FROM TIMER/TUNER MODE CONTROL BLOCK
CG CS
PAL OSD
VIDEO OSD
SI BUS
S CLK
FROM SYSTEM CONTROL BLOCK
OSD MUTE
CN301
MOD V
To TUNER BLOCK
I0-51 BOARD (1/2)
(See page 4-47)
IC601 ⑧ PAL REC/PB
2.2Vp-p
17MHz
IC601 ⑧ NTSC REC/PB
2Vp-p
14.4MHz
IC601 ⑨ PAL REC/PB
3.5Vp-p
17MHz
IC601 ⑨ NTSC REC/PB
3.8Vp-p
14.4MHz
IC601 ③ PAL
IC601 ㉕ PAL
H
IC601
CHARACTER GENERATOR
5V
Q604
SWITCH
X601 17.7M
Q605
X602 14.3M
XTAL OSC
LC OSC
Q607
BUFFER
CHARACTER GENERATOR
CS
V SYNC
EXV SYNC
EXH SYNC
Q601, 602
BUFFER
CJ601
VIDEO
LINE OUT
Q603
MUTING BUFFER
IC602
SYNC AFC
V SEP
SYNC SEP
AFC
COUNT DOWN
LOCK DET
33fH VCO
X603 500k
D6V
S601
NTSC 3.58
NTSC 4.43
ON PAL TV
NTSC PB
EXV SYNC
V SYNC
H DET
COLOR SYS
FROM VIDEO BLOCK 1
COMP SYNC
CN803
Q303
SWITCH
AN 5V
IC602 ② PAL PB
2.1Vp-p
IC602 ② NTSC PB
2Vp-p
IC602 ⑩ PAL, NTSC REC/PB
0.7Vp-p
500kHz
IC602 ⑪ PAL REC/PB
1.6Vp-p
500kHz
IC602 ⑪ NTSC REC/PB
1.6Vp-p
500kHz
IC602 ⑨ PAL, NTSC REC/PB
4.3Vp-p
64 μ sec
05

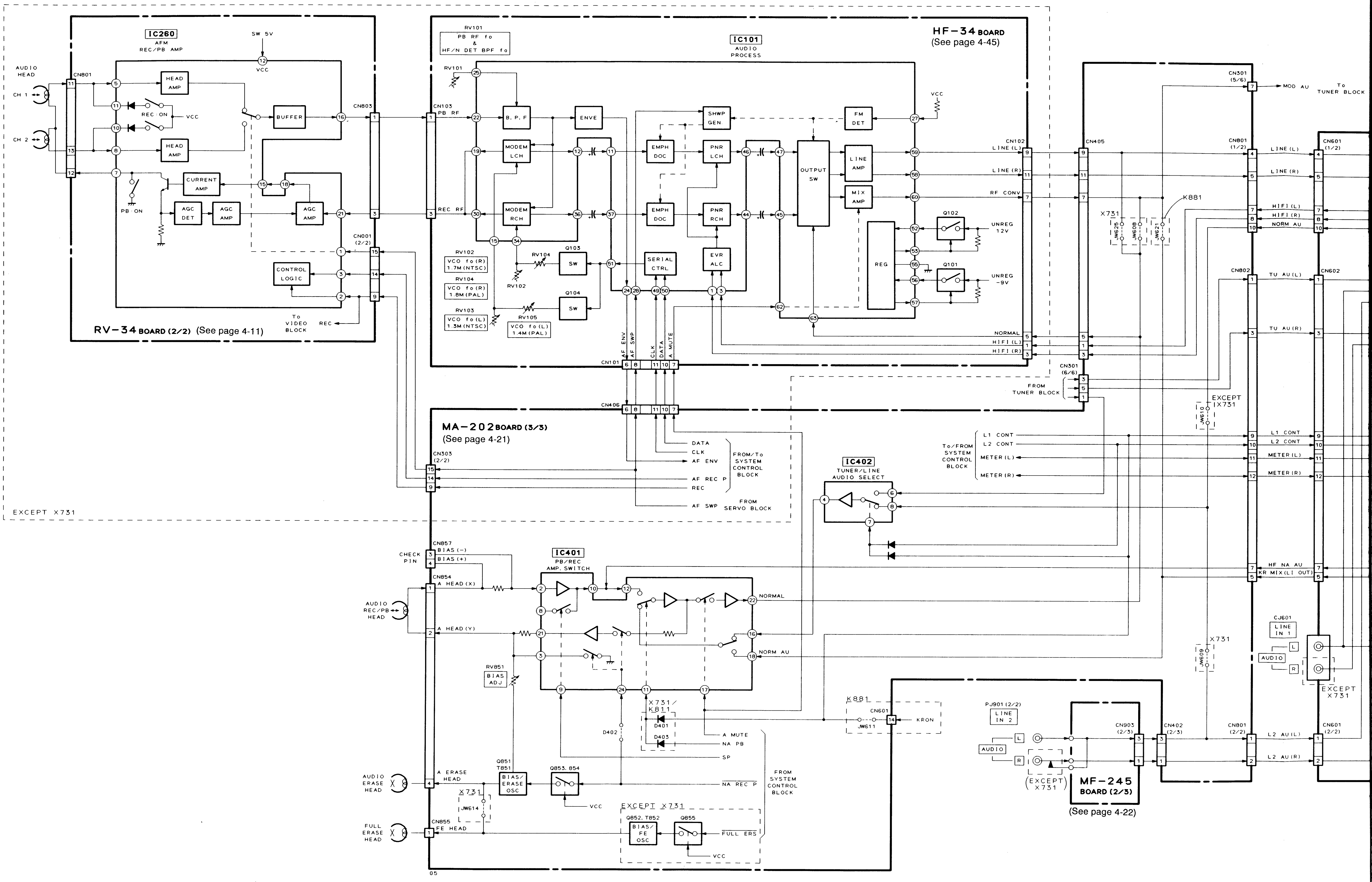

MA-202 BOARD (1/3)
(See page 4-21)
IO-51 BOARD (1/2)
(See page 4-47)
IC305 VIDEO SW
IC301
IC601 CHARACTER GENERATOR
XTAL OSC
LC OSC
CHARACTER GENERATOR
IC602 SYNC AFC
V SEP
SYNC SEP
AFC
COUNT DOWN
LOCK DET
33fH VCO
X603 500k
Q604 SWITCH
Q605 SWITCH
X601 17.7M
X602 14.3M
Q607 BUFFER
Q603 MUTING BUFFER
Q601, 602 BUFFER
CJ601 VIDEO LINE OUT
Q303 SWITCH
AN 5V
S601
NTSC 3.58
NTSC 4.43
ON PAL TV
NTSC PB
D6V
5V
CN302
CN803
CN402 (1/3)
CN903
CN303
CN304
CN301
CN603
CN702
CN703
TU V
V L1
C.ROT
PAL NTSC
CG CS
VIDEO OUT
VIDEO IN
VIDEO SKEW IN
To/FROM VIDEO BLOCK 1
LINE 2
LINE 1
FROM SYSTEM CONTROL BLOCK
Q304-306
RF SWP
SKEW ON
PAL OSD
VIDEO OSD
FROM SYSTEM CONTROL BLOCK
SI BUS
S CLK
CG CS
CS
OSD MUTE
MOD V
To TUNER BLOCK
V SYNC
EXV SYNC
EXH SYNC
H DET
COLOR SYS
To SYSTEM CONTROL BLOCK
FROM VIDEO BLOCK 1
COMP SYNC
PT-97 BOARD (1/7)
(See page 4-26)
To MODE CONTROL BLOCK
IC601⑧ PAL REC/PB
2.2Vp-p
17MHz
IC601⑧ NTSC REC/PB
2Vp-p
14.4MHz
IC601⑨ PAL REC/PB
3.5Vp-p
17MHz
IC601⑨ NTSC REC/PB
3.8Vp-p
14.4MHz
IC601③ PAL REC
1.2Vp-p
IC601③ NTSC REC
2.1Vp-p
IC601③ PAL PB
2.2Vp-p
IC601③ NTSC PB
2Vp-p
IC601㉕ PAL REC
2Vp-p
IC601㉕ NTSC REC
2.1Vp-p
IC601㉕ PAL PB
2.1Vp-p
IC601㉕ NTSC PB
1.9Vp-p
H
IC602② PAL PB
2.1Vp-p
IC602② NTSC PB
2Vp-p
IC602⑩ PAL, NTSC REC/PB
0.7Vp-p
500kHz
IC602⑪ PAL REC/PB
1.6Vp-p
500kHz
IC602⑪ NTSC REC/PB
1.6Vp-p
500kHz
IC602⑨ PAL, NTSC REC/PB
4.3Vp-p
64 µ sec

3-4. SERVO, SYSTEM CONTROL BLOCK DIAGRAM

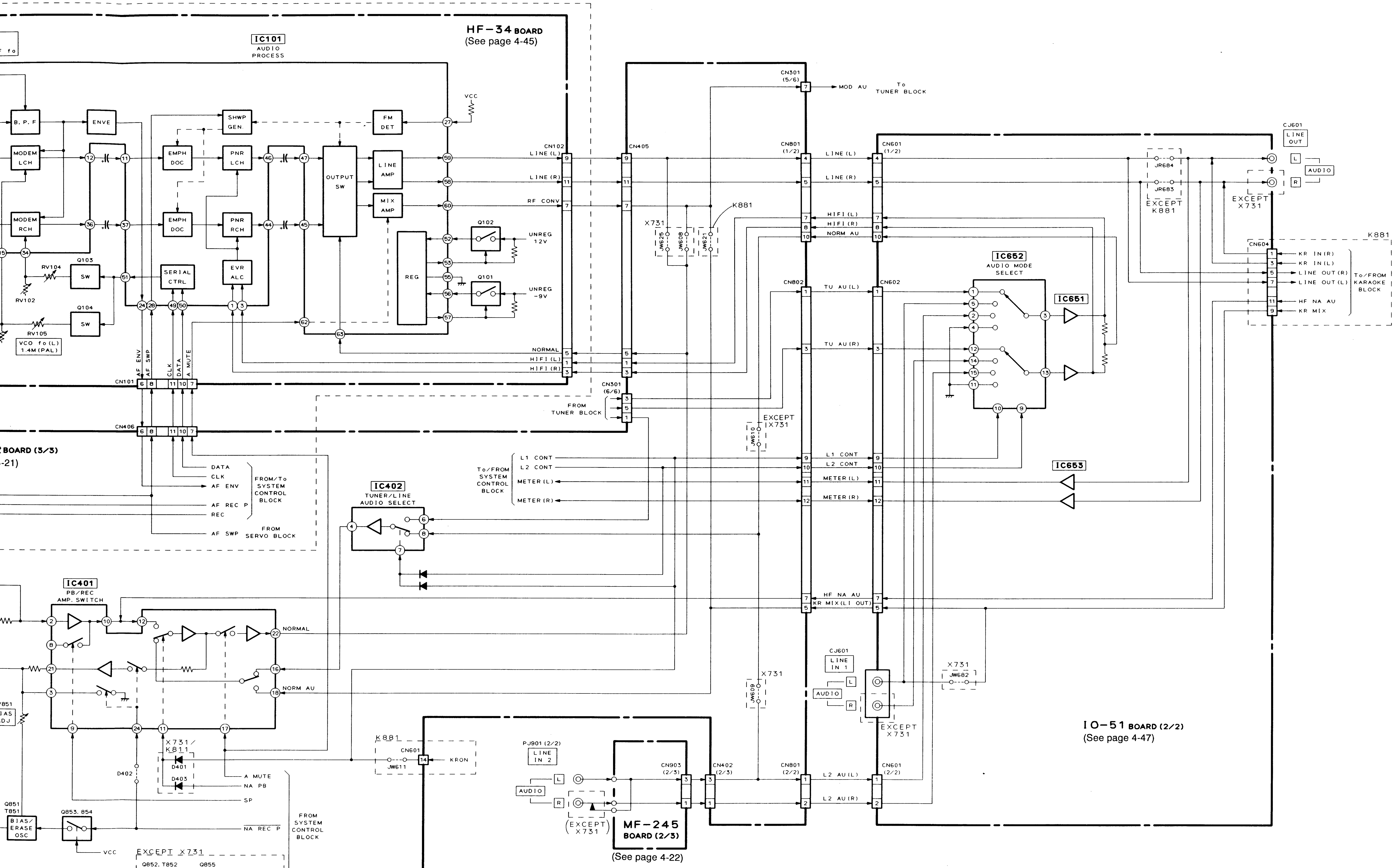

IC101 ㉑ PAL REC/PB
1.9Vp-p
25Hz
IC101 ㉑ NTSC REC/PB
1.8Vp-p
30Hz
MA-202 BOARD (2/3)
(See page 4-22)
IC101 ⑳ REC/PB PAL
2.52Vp-p
664 μsec
IC101 ⑳ REC/PB NTSC
2.52Vp-p
460 μsec
IC203 (68) REC/PB PAL
4.48Vp-p
40msec
IC203 (69) RF/PB PAL
5.04Vp-p
6.68 msec
IC203 ① REC/PB PAL
5.12Vp-p
40 msec
IC203 (100) REC/PB PAL
5.2Vp-p
40 msec
IC203 (68) REC/PB NTSC
4.56Vp-p
33.4 msec
IC203 (69) RF/PB NTSC
5.04Vp-p
2.78 msec
IC203 ① REC/PB NTSC
5.2Vp-p
33.4 msec
IC203 (100) REC/PB NTSC
5.28Vp-p
33.4 msec
IC203 (42) PAL, NTSC REC/PB
2.9Vp-p
12MHz
M901
DRUM MOTOR (1/2)
DRUM PG SENSOR
IC1 (1/3)
IC1 (2/3)
DRUM FG
M901
M902
CAPSTAN MOTOR (1/2)
RM1
CAPSTAN FG SENSOR
IC1 (1/2)
M902
DRUM PG
DRUM FG
CN201
CAP FG
CN002
AN 5V
IC101 (1/3)
WAVE SHAPER
IC101 (2/3)
CAPSTAN FG AMP
IC101 (3/3)
CTL REC/PB AMP
IC203 (1/2)
SERVO
RF SWP
AF SWP
RF SWP
To VIDEO BLOCK 1
AF SWP
To AUDIO BLOCK
DRUM PG
DRUM FG
RF SW POS
RV202
RF SW POS
AF SW POS
RV201
AF SW POS
CAP FG
DRUM DA
REF 2.5V
IC202 (1/2)
DRUM ERROR INTEGRATOR
9V
IC202 (2/2)
CAPSTAN ERROR INTEGRATOR
CAP DA
CAP STOP
STEP PLS
D201
CAP RVS
CAP TRQ1
CAP TRQ2
LIMITER
MTR 12V
SW 5V
CN304
CN201
CN002
CAP VS
CTL INDEX
CTL REC
REC CTL
PB CTL
VD CTL
CTL STEP
INDEX
REC INH
RC
CTL
REC CTL GEN
TIMING GEN
PB
REC CTL
3 VALUE DET (H/L) REC CTL OPEN PB
PB CTL AMP
GCA
PB CTL AMP
LEVEL DET
PB CTL LOGIC
PEAK DET
RTG MMV
TIME CONST
BIAS 2.4V
DC (24V)
AMP GAIN
FOR CHECK
CN101
CTL HEAD
CTL (Y)
CTL (X)
VCC
M901
DRUM MOTOR (2/2)
IC1 (3/3)
DRUM MOTOR DRIVE
CN004
D.VS
V REG
CONTROL AMP1, 2
φ1 HALL AMP
HALL
HALL
φ1 AMP
φ1 DRIVER
TSD
φ2 AMP
φ2 DRIVER
φ2 HALL AMP
ST/SP
V REG
VCC
M901 DRUM MOTOR
IC1 (2/2)
M902 CAPSTAN MOTOR
VS
FRC
TL
VM
VCC
U (+)
U (-)
V (+)
V (-)
W (+)
W (-)
SW 5V
HALL DRIVE
M902
CAPSTAN MOTOR (2/2)
CA-41 BOARD
M903 CAM MOTOR
CM-14 BOARD
M904 LOADING MOTOR
S1
CAM ENCODER
ROTARY SWITCH (CAM POSITION)
CN006
CN005
CN003
IC201
CAM/LOADING MOTOR DRIVE
CAM (+)
CAM (-)
LOAD (+)
CAM
CW/CCW
LOAD
MTR 12V
CAM
CW/CCW
LOAD
MODE 1
MODE 2
MODE 3
MODE 4
IC002 (1/2)
WAVE SHAPER
D+5V
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
S SENSD
T SENS
IC002 (2/2)
WAVE SHAPER
PH001 SUPPLY REEL FG
PH002 TAKE-UP REEL FG
S REEL
T REEL
X201 12MHz
XTAL
EXTAL
D204
DIG 6V
VDD
AV DD
AV REF
Q201 LED DRIVE
D001 TOP/END LED
END LED
S001 CASSETE UP/DOWN
UP
DOWN
C DOWN
S002 REC PROOF
CIN/REC PRE
IC203 (2/2)
SYSTEM CONTROL
REW A LITTLE
AMS
SO BUS
SI BUS
S CLK
COSMO CS
COSMO RST
MODE CONT
3.58 NTSC
NTSC
NT JUDGE
V PB
E TAPE
ORC ON
QVD
QHD ENABLE
JOG
SECAM
ME SECAM
LP HEAD
RF ENV
REC P
HEAD CONT
ENV GAIN
OSD MUTE
COLOR SYS
V SYNC
SKEW ON
LINE 1
LINE 2
AF ENV
AF REC P
REC
A MUTE
NA PB
NA REC P
FULL ERS
SP
METER (L)
METER (R)
SO 1
SCK 1
IC101 ⑦ REC PAL
6Vp-p
40msec
IC101 ⑦ REC NTSC
6.32Vp-p
33.4 msec
IC203 (67) PB PAL
5.04Vp-p
40 msec
IC203 (67) PB NTSC
5.36Vp-p
33.4 msec
IC203 (77) REC/PB PAL
5.04Vp-p
40 msec
IC203 (77) REC/PB NTSC
5.28Vp-p
33.4 msec
IC203 ⑦ REC PAL
4.96Vp-p
40 msec
IC203 ⑦ REC NTSC
5.04Vp-p
33.4 msec
IC203 (70) REC/PB PAL
4.4Vp-p
660 μsec
IC203 (70) REC/PB NTSC
4.56Vp-p
460 μsec


1.8Vp-p
IC203 (69) RF/PB PAL
5.04Vp-p
6.68 msec
IC203 (1) REC/PB PAL
5.12Vp-p
40 msec
IC203 (100) REC/PB PAL
5.2Vp-p
40 msec
IC203 (69) RF/PB NTSC
5.04Vp-p
2.78 msec
IC203 (1) REC/PB NTSC
5.2Vp-p
33.4 msec
IC203 (100) REC/PB NTSC
5.28Vp-p
33.4 msec
IC203 (42) PAL, NTSC REC/PB
2.9Vp-p
12MHz
CN304
RF SWP
To VIDEO BLOCK 1
AF SWP
To AUDIO BLOCK
RV202
RF SW POS
RV201
AF SW POS
IC202 (1/2)
DRUM ERROR INTEGRATOR
REF 2.5V
9V
IC202 (2/2)
CAPSTAN ERROR INTEGRATOR
CN201
CN002
CAP VS
D201
CAP RVS
LIMITER
MTR 12V
SW 5V
M901
DRUM MOTOR (2/2)
IC1 (3/3)
DRUM MOTOR DRIVE
CN004
D.VS
V REG
CONTROL AMP1, 2
HALL
φ1 HALL AMP
φ1 AMP
φ1 DRIVER
TSD
φ2 AMP
φ2 DRIVER
φ2 HALL AMP
ST/SP
V REG
VCC
M901 DRUM MOTOR
IC1 (2/2)
M902 CAPSTAN MOTOR
VS
FRC
TL
VM
VCC
SW 5V
U(+) U(-) V(+) V(-) W(+) W(-)
HALL DRIVE
M902
CAPSTAN MOTOR (2/2)
CA-41 BOARD
M903 CAM MOTOR
CN006
CM-14 BOARD
M904 LOADING MOTOR
CN005
S1
CAM ENCODER
ROTARY SWITCH
(CAM POSITION)
CN003
IC203 (2/2)
SYSTEM CONTROL
REW A LITTLE (10)
AMS (78)
SO BUS (46)
SI BUS (45)
S CLK (47)
COSMO CS (44)
COSMO RST (40)
MODE CONT (19)
D+5V
IC002 (1/2)
WAVE SHAPER
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
(18) S SENSD
(17) T SENS
IC002 (2/2)
WAVE SHAPER
PH001 SUPPLY REEL FG
PH002 TAKE-UP REEL FG
(63) S REEL
(64) T REEL
X201 12MHz
(42) XTAL
(43) EXTAL
D204
DIG 6V
(89) VDD
(54) AV DD
(53) AV REF
Q201 LED DRIVE
D001 TOP/END LED
(32) END LED
S001 CASSETE UP/DOWN
UP DOWN
(16) C DOWN
S002 REC PROOF
(15) CIN/REC PRE
IC201
CAM/LOADING MOTOR DRIVE
CAM(+) CAM(-) LOAD(+)
CAM CW/CCW LOAD
MTR 12V
(12) CAM
(13) CW/CCW
(14) LOAD
(58) MODE 1
(57) MODE 2
(56) MODE 3
(55) MODE 4
3.58 NTSC (26)
NTSC (27)
NT JUDGE (65)
V PB (95)
E TAPE (28)
ORC ON (76)
QVD (3)
QHD ENABLE (2)
JOG (97)
SECAM (22)
ME SECAM (21)
LP HEAD (99)
RF ENV (60)
REC P (5)
HEAD CONT (85)
ENV GAIN (92)
X731
D354
JR619
EXCEPT X731
Q354 OSD MUTE SWITCH
OSD MUTE
OSD MUTE (71)
COLOR SYS (50)
V SYNC (66)
SKEW ON (9)
LINE 1 (79)
LINE 2 (82)
COLOR SYS
COMP SYNC
SKEW ON
LINE 1
LINE 2
To/FROM VIDEO BLOCK 2
LINE 1
LINE 2
CLK
DATA
AF ENV (61)
AF REC P (4)
REC (98)
A MUTE (37)
NA PB (11)
NA REC P (83)
FULL ERS (36)
SP (91)
METER (L) (48)
METER (R) (49)
AF ENV
AF REC P
REC
A MUTE
NA PB
NA REC P
FULL ERS
SP
METER (L)
METER (R)
To/FROM AUDIO BLOCK
COSMO RST
To AUDIO BLOCK
S-CLK
SI BUS
To VIDEO BLOCK 1
K881
(See page 4-26)
REW A LITTLE
AMS
To/FROM KARAOKE BLOCK
PT-97 BOARD (2/7)
CN302
SO BUS
SI BUS
S CLK
COSMO CS
COSMO RST
To/FROM TIMER/TUNER MODE CONTROL
MODE CONT
3.58 NTSC
To TUNER BLOCK
Q380
AN 5V
SWITCH
CN304
3.58MHz
NTSC
NT JUDGE
V PB
E TAPE
ORC ON
QVD
CLK
DATA
To/FROM VIDEO BLOCK 1
CN303
JOG
SECAM
ME SECAM
SP
RF ENV
REC P
HEAD CONT
ENV CONT
REC CUR
IC203 (47) REC/PB PAL
10msec/DIV
5.04Vp-p
IC203 (47) REC/PB NTSC
5.36Vp-p
V
IC303
SYNCHRONIZED SERIAL BUS PARALLEL
AN 5V
SO 1 (80)
SCK 1 (81)
TAIL MARK COUNTER
CLOCK GATE
ADDRESS SHIFT REGISTER
ADDRESS DECODER
DATA SHIFT REGISTER
OUTPUT LATCH REGISTER
DIVIDE
Q302
SW
IC203 (7) REC PAL
4.96Vp-p
40 msec
IC203 (70) REC/PB PAL
4.4Vp-p
660 μsec
IC203 (7) REC NTSC
5.04Vp-p
33.4 msec
IC203 (70) REC/PB NTSC
4.56Vp-p
460 μsec

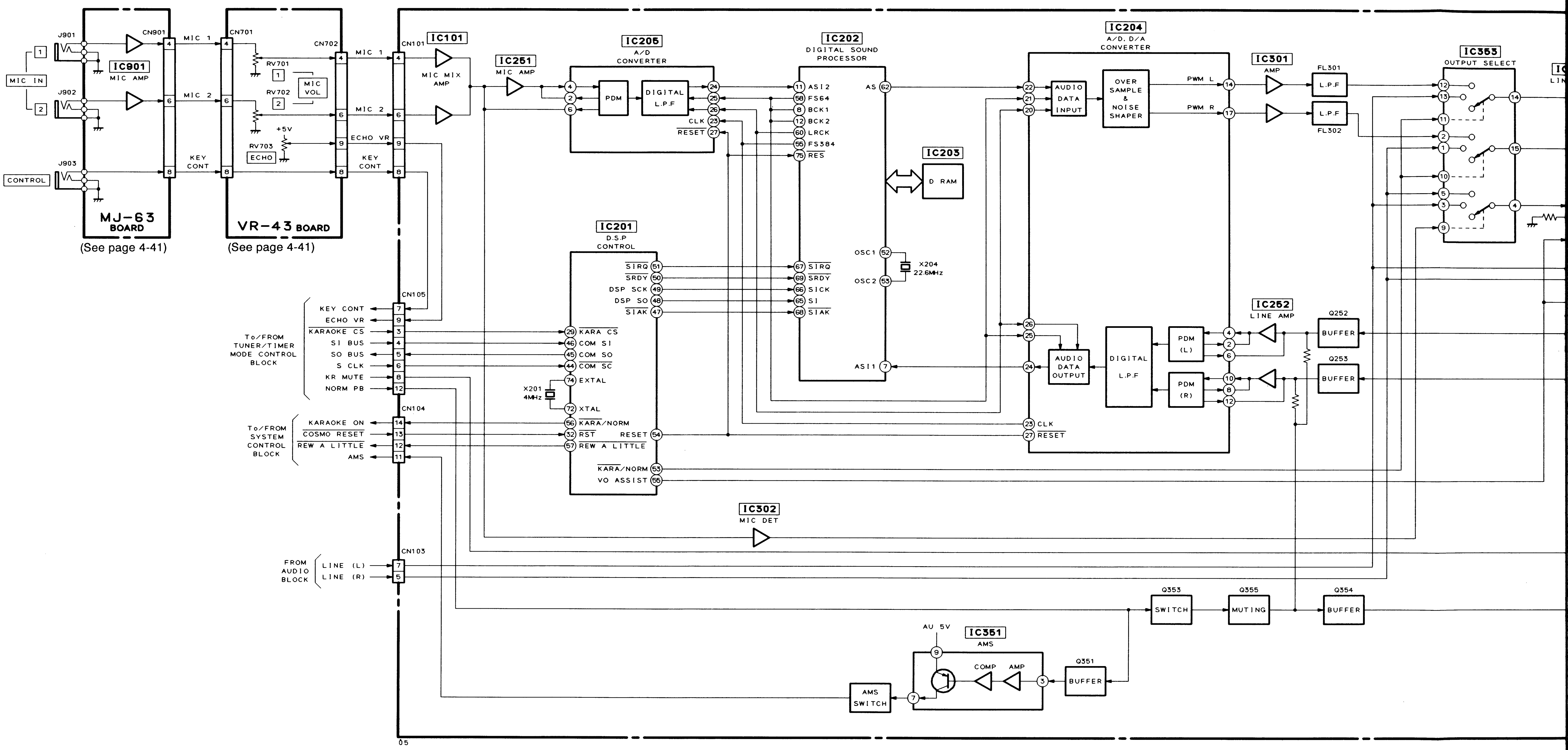
3-5. AUDIO BLOCK DIAGRAM



IC260
AFM REC/PB AMP
SW 5V
VCC
AUDIO HEAD
CH 1
CH 2
CN801
HEAD AMP
REC ON
BUFFER
CURRENT AMP
AGC DET
AGC AMP
PB ON
CONTROL LOGIC
CN803
CN001 (2/2)
To VIDEO BLOCK
REC
RV-34 BOARD (2/2) (See page 4-11)
RV101
PB RF fo & HF/N DET BPF fo
IC101
AUDIO PROCESS
HF-34 BOARD (See page 4-45)
CN103
PB RF
REC RF
B.P.F
ENVE
SHWP GEN
FM DET
MODEM LCH
MODEM RCH
EMPH DOC
PNR LCH
PNR RCH
OUTPUT SW
LINE AMP
MIX AMP
REG
EVR ALC
SERIAL CTRL
Q103 SW
Q104 SW
Q101
Q102
RV102 VCO fo(R) 1.7M(NTSC)
RV104 VCO fo(R) 1.8M(PAL)
RV103 VCO fo(L) 1.3M(NTSC)
RV105 VCO fo(L) 1.4M(PAL)
UNREG 12V
UNREG -9V
CN102
LINE(L)
LINE(R)
RF CONV
NORMAL
HIFI(L)
HIFI(R)
AF ENV
AF SWP
CLK
DATA
A MUTE
CN101
CN406
MA-202 BOARD (3/3) (See page 4-21)
CN303 (2/2)
DATA
CLK
AF ENV
AF REC P
REC
AF SWP
FROM/To SYSTEM CONTROL BLOCK
FROM SERVO BLOCK
EXCEPT X731
CN405
CN301 (5/6)
MOD AU
To TUNER BLOCK
CN301 (6/6)
FROM TUNER BLOCK
CN801 (1/2)
CN601 (1/2)
HIFI(L)
HIFI(R)
NORM AU
K881
X731
JW625
JW608
JW621
CN802
CN602
TU AU(L)
TU AU(R)
EXCEPT IX731
JW610
To/FROM SYSTEM CONTROL BLOCK
L1 CONT
L2 CONT
METER(L)
METER(R)
IC402
TUNER/LINE AUDIO SELECT
HF NA AU
KR MIX(LI OUT)
CN857
CHECK PIN
BIAS(-)
BIAS(+)
CN854
A HEAD(X)
A HEAD(Y)
AUDIO REC/PB HEAD
IC401
PB/REC AMP. SWITCH
NORMAL
NORM AU
RV851 BIAS ADJ
X731/K811
D401
D402
D403
A MUTE
NA PB
SP
NA REC P
FULL ERS
FROM SYSTEM CONTROL BLOCK
Q851 T851 BIAS/ERASE OSC
Q853, 854
VCC
A ERASE HEAD
AUDIO ERASE HEAD
JW614
EXCEPT X731
Q852, T852 BIAS/FE OSC
Q855
CN855
FE HEAD
FULL ERASE HEAD
K881
CN601
JW611
KRON
CJ601 LINE IN 1
AUDIO
L
R
JW609
EXCEPT X731
PJ901 (2/2) LINE IN 2
CN903 (2/3)
CN402 (2/3)
CN801 (2/2)
CN601 (2/2)
L2 AU(L)
L2 AU(R)
(EXCEPT X731)
MF-245 BOARD (2/3) (See page 4-22)
05

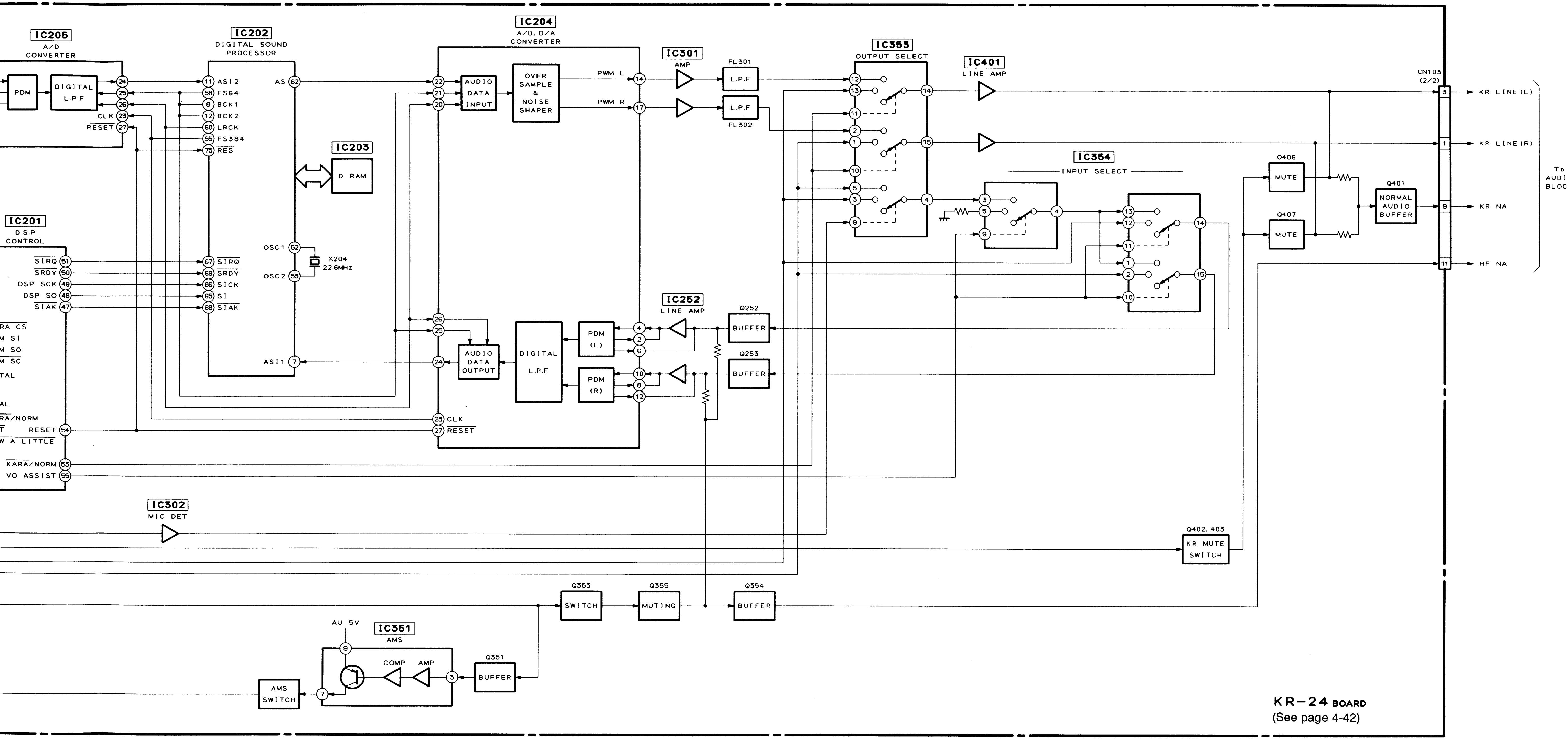

HF-34 BOARD
(See page 4-45)
IC101
AUDIO PROCESS
B.P.F
ENVE
SHWP GEN.
FM DET
VCC
MODEM LCH
MODEM RCH
EMPH DOC
PNR LCH
PNR RCH
OUTPUT SW
LINE AMP
MIX AMP
REG
Q102
UNREG 12V
Q101
UNREG -9V
RV104
RV102
RV105
Q103
Q104
SW
SERIAL CTRL.
EVR ALC
VCO fo(L) 1.4M(PAL)
CN102
LINE (L)
LINE (R)
RF CONV
NORMAL
HIFI (L)
HIFI (R)
CN101
AF ENV
AF SWP
CLK
DATA
A MUTE
CN406
BOARD (3/3)
-21)
DATA
CLK
AF ENV
AF REC P
REC
AF SWP
FROM/To SYSTEM CONTROL BLOCK
FROM SERVO BLOCK
CN405
CN301 (5/6)
MOD AU
To TUNER BLOCK
CN301 (6/6)
FROM TUNER BLOCK
X731
JW625
JW608
JW621
K881
EXCEPT X731
JW610
CN801 (1/2)
LINE (L)
LINE (R)
HIFI (L)
HIFI (R)
NORM AU
CN802
TU AU (L)
TU AU (R)
CN601 (1/2)
CN602
To/FROM SYSTEM CONTROL BLOCK
L1 CONT
L2 CONT
METER (L)
METER (R)
HF NA AU
KR MIX (L1 OUT)
IC402
TUNER/LINE AUDIO SELECT
IC652
AUDIO MODE SELECT
IC651
IC653
CJ601
LINE OUT
JR684
JR683
EXCEPT K881
EXCEPT X731
AUDIO
L
R
K881
CN604
KR IN (R)
KR IN (L)
LINE OUT (R)
LINE OUT (L)
HF NA AU
KR MIX
To/FROM KARAOKE BLOCK
IC401
PB/REC AMP. SWITCH
NORMAL
NORM AU
T851
BIAS ADJ
Q851
T851
BIAS/ERASE OSC
Q853, 854
VCC
D402
X731/K811
D401
D403
A MUTE
NA PB
SP
NA REC P
FROM SYSTEM CONTROL BLOCK
EXCEPT X731
Q852, T852
BIAS/FE OSC
Q855
FULL ERS
VCC
K881
CN601
JW611
KRON
X731
JW609
CJ601
LINE IN 1
AUDIO
L
R
X731
JW682
EXCEPT X731
IO-51 BOARD (2/2)
(See page 4-47)
PJ901 (2/2)
LINE IN 2
AUDIO
L
R
(EXCEPT X731)
MF-245 BOARD (2/3)
(See page 4-22)
CN903 (2/3)
CN402 (2/3)
CN801 (2/2)
L2 AU (L)
L2 AU (R)
CN601 (2/2)

3-6. KARAOKE BLOCK DIAGRAM (SLV-K881)


MIC IN
1
2
J901
J902
J903
CONTROL
IC901
MIC AMP
CN901
MJ-63 BOARD
MIC 1
MIC 2
KEY CONT
CN701
RV701
RV702
RV703
ECHO
MIC VOL
+5V
CN702
VR-43 BOARD
ECHO VR
CN101
IC101
MIC MIX AMP
IC251
MIC AMP
IC205
A/D CONVERTER
PDM
DIGITAL L.P.F
CLK
RESET
IC202
DIGITAL SOUND PROCESSOR
ASI2
FS64
BCK1
BCK2
LRCK
FS384
RES
AS
IC203
D RAM
OSC1
OSC2
X204
22.6MHz
ASI1
IC201
D.S.P CONTROL
SIRQ
SRDY
DSP SCK
DSP SO
SIAK
SICK
SI
KARA CS
COM SI
COM SO
COM SC
EXTAL
XTAL
X201
4MHz
KARA/NORM
RST
RESET
REW A LITTLE
VO ASSIST
CN105
KEY CONT
ECHO VR
KARAOKE CS
SI BUS
SO BUS
S CLK
KR MUTE
NORM PB
To/FROM TUNER/TIMER MODE CONTROL BLOCK
CN104
KARAOKE ON
COSMO RESET
REW A LITTLE
AMS
To/FROM SYSTEM CONTROL BLOCK
IC204
A/D. D/A CONVERTER
AUDIO DATA INPUT
OVER SAMPLE & NOISE SHAPER
PWM L
PWM R
AUDIO DATA OUTPUT
DIGITAL L.P.F
PDM (L)
PDM (R)
IC301
AMP
FL301
FL302
L.P.F
IC252
LINE AMP
Q252
Q253
BUFFER
IC353
OUTPUT SELECT
IC302
MIC DET
CN103
FROM AUDIO BLOCK
LINE (L)
LINE (R)
Q353
SWITCH
Q355
MUTING
Q354
BUFFER
IC351
AMS
AU 5V
COMP
AMP
Q351
BUFFER
AMS SWITCH
05

(See page 4-41)

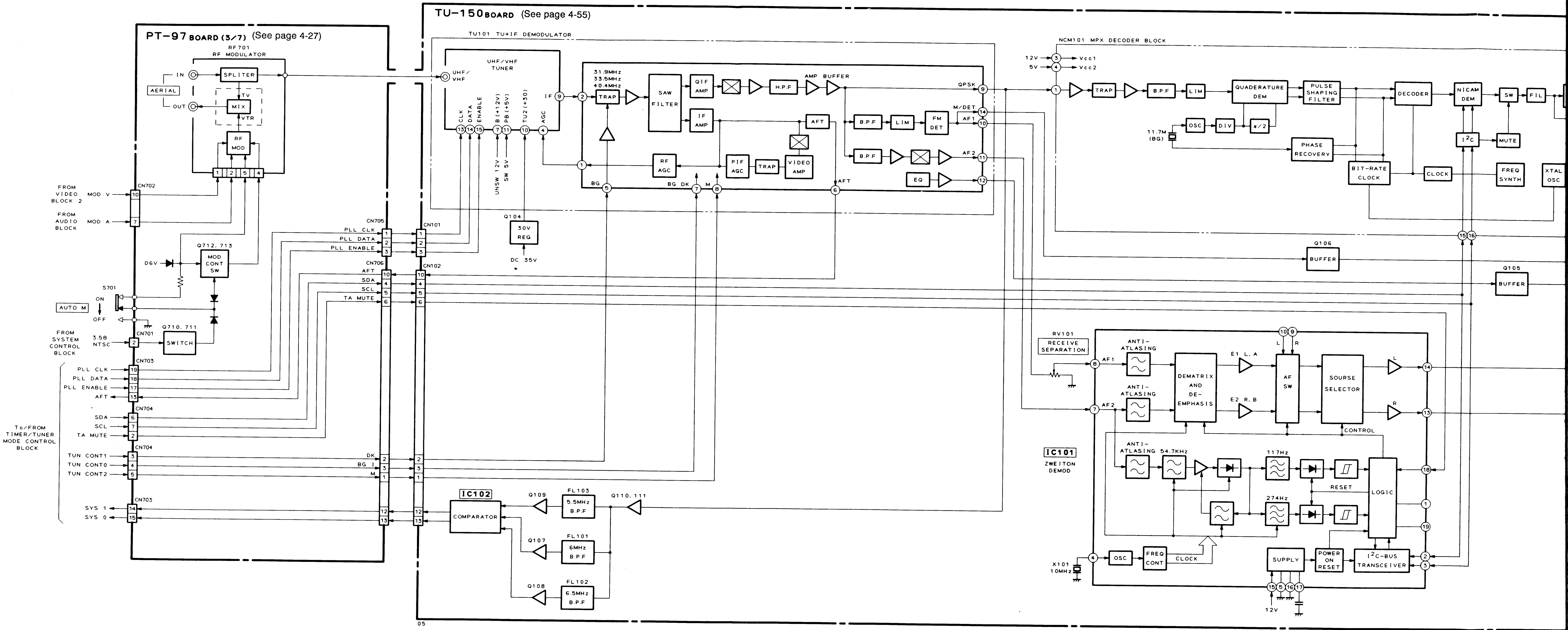
(See page 4-41)


IC205
A/D CONVERTER
PDM
DIGITAL L.P.F
CLK
RESET
IC202
DIGITAL SOUND PROCESSOR
ASI2
FS64
BCK1
BCK2
LRCK
FS384
RES
AS
ASI1
OSC1
OSC2
X204 22.6MHz
IC203
D RAM
IC201
D.S.P CONTROL
SIRQ
SRDY
DSP SCK
DSP SO
SIAK
SICK
SI
RA CS
M SI
M SO
M SC
TAL
AL
RA/NORM
T RESET
W A LITTLE
KARA/NORM
VO ASSIST
IC204
A/D, D/A CONVERTER
AUDIO DATA INPUT
OVER SAMPLE & NOISE SHAPER
PWM L
PWM R
AUDIO DATA OUTPUT
DIGITAL L.P.F
PDM (L)
PDM (R)
CLK
RESET
IC301
AMP
FL301
L.P.F
FL302
IC252
LINE AMP
Q252
BUFFER
Q253
BUFFER
IC353
OUTPUT SELECT
IC401
LINE AMP
IC354
INPUT SELECT
Q406
MUTE
Q407
MUTE
Q401
NORMAL AUDIO BUFFER
CN103 (2/2)
KR LINE (L)
KR LINE (R)
KR NA
HF NA
To AUDIO BLOCK
IC302
MIC DET
Q402, 403
KR MUTE SWITCH
Q353
SWITCH
Q355
MUTING
Q354
BUFFER
AU 5V
IC351
AMS
COMP
AMP
Q351
BUFFER
AMS SWITCH

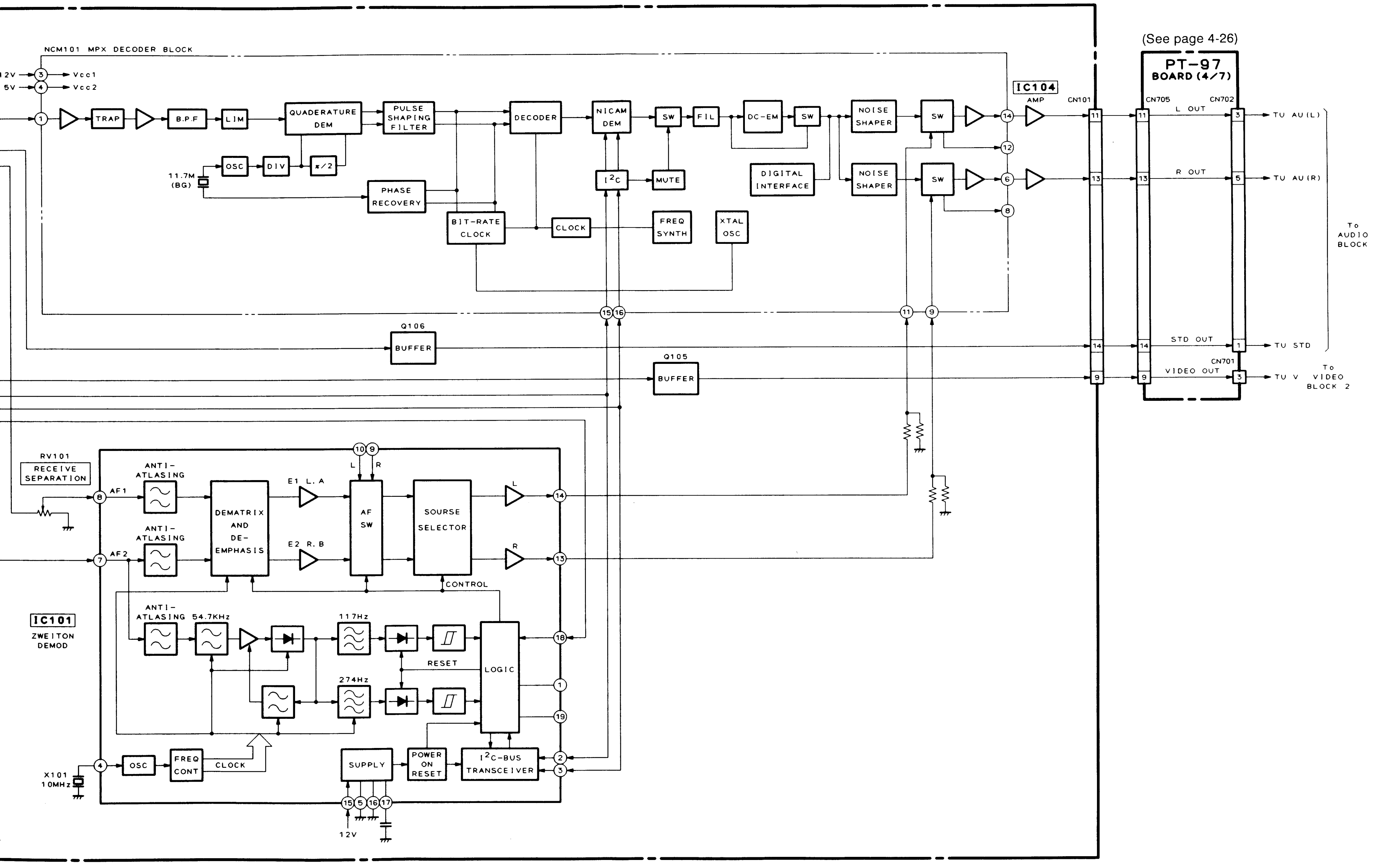
KR-24 BOARD
(See page 4-42)

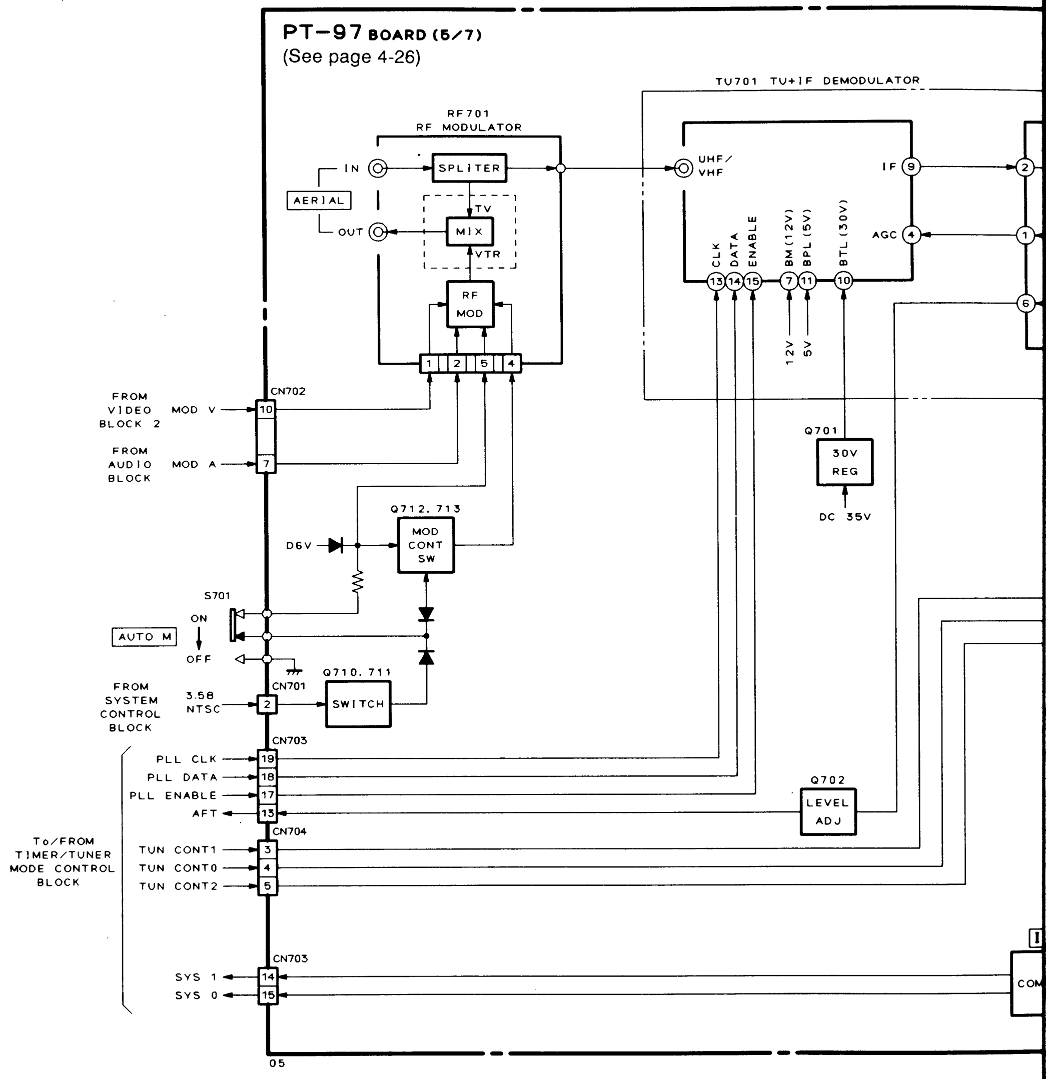
3-7. TUNER BLOCK DIAGRAM

• SLV-836EE/K881/X831

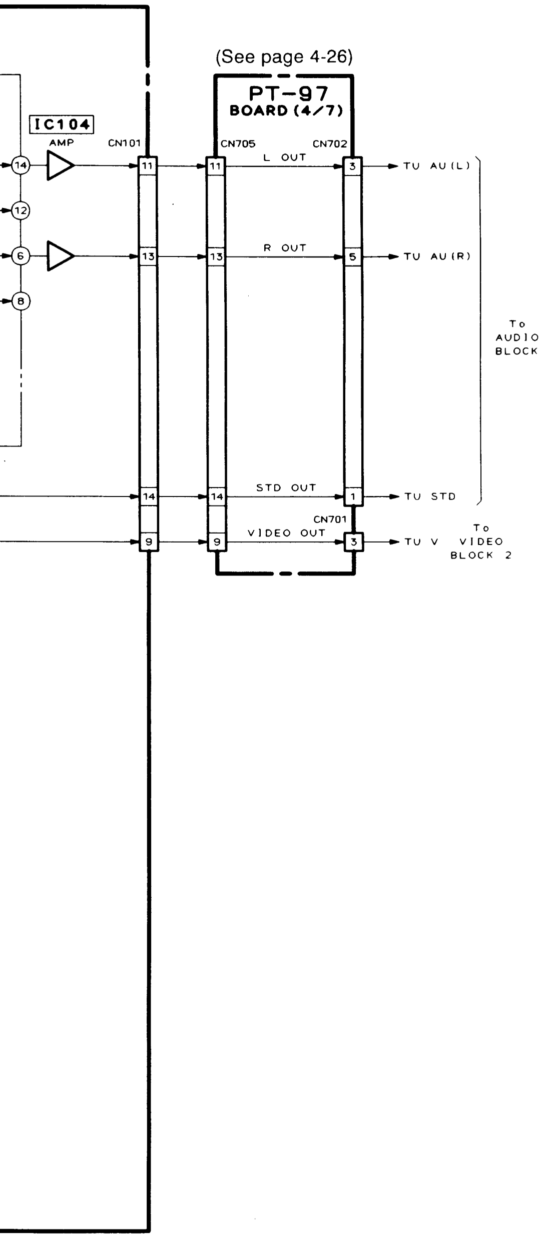

TU-150 BOARD (See page 4-55)
PT-97 BOARD (3/7) (See page 4-27)
RF701 RF MODULATOR
IN
OUT
AERIAL
SPLITER
MIX
TV
VTR
RF MOD
CN702
FROM VIDEO BLOCK 2
MOD V
FROM AUDIO BLOCK
MOD A
Q712, 713
MOD CONT SW
D6V
S701
AUTO M
ON
OFF
Q710, 711
SWITCH
CN701
FROM SYSTEM CONTROL BLOCK
3.58 NTSC
CN703
PLL CLK
PLL DATA
PLL ENABLE
AFT
CN704
SDA
SCL
TA MUTE
To/FROM TIMER/TUNER MODE CONTROL BLOCK
TUN CONT1
TUN CONT0
TUN CONT2
SYS 1
SYS 0
CN705
CN706
CN101
CN102
DK
BG I
M
TU101 TU+IF DEMODULATOR
UHF/VHF TUNER
UHF/VHF
CLK
DATA
ENABLE
B(+12V)
PB(+5V)
TU2(+30)
AGC
UNSW 12V
SW 5V
IF
Q104
30V REG
DC 35V
31.9MHz
33.5MHz
40.4MHz
TRAP
SAW FILTER
QIF AMP
IF AMP
H.P.F
AMP BUFFER
QPSK
M/DET
AF1
AF2
AFT
B.P.F
LIM
FM DET
RF AGC
PIF AGC
VIDEO AMP
EQ
BG
BG DK
IC102
COMPARATOR
Q109
FL103
5.5MHz B.P.F
Q110, 111
Q107
FL101
6MHz B.P.F
Q108
FL102
6.5MHz B.P.F
NCM101 MPX DECODER BLOCK
12V
5V
Vcc1
Vcc2
QUADERATURE DEM
PULSE SHAPING FILTER
DECODER
NICAM DEM
SW
FIL
11.7M (BG)
OSC
DIV
π/2
PHASE RECOVERY
BIT-RATE CLOCK
CLOCK
I²C
MUTE
FREQ SYNTH
XTAL OSC
Q106
BUFFER
Q105
BUFFER
RV101
RECEIVE SEPARATION
IC101
ZWEITON DEMOD
ANTI-ATLASING
DEMATRIX AND DE-EMPHASIS
E1 L.A
E2 R.B
AF SW
SOURSE SELECTOR
CONTROL
L
R
ANTI-ATLASING 54.7KHz
117Hz
274Hz
RESET
LOGIC
X101 10MHz
OSC
FREQ CONT
CLOCK
SUPPLY
POWER ON RESET
I²C-BUS TRANSCEIVER
12V
05

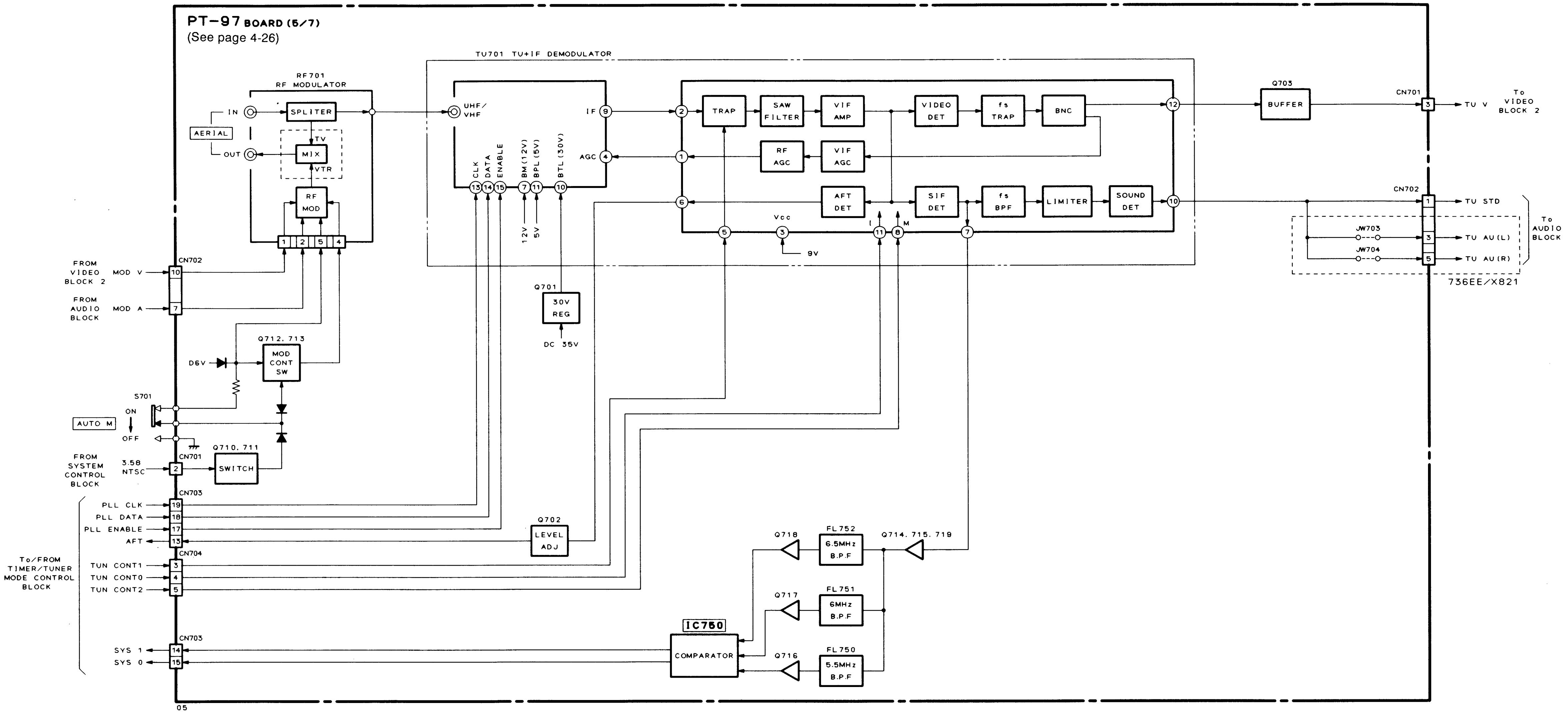
• SLV-736EE/X731/X821


NCM101 MPX DECODER BLOCK
12V
5V
Vcc1
Vcc2
TRAP
B.P.F
LIM
QUADERATURE DEM
PULSE SHAPING FILTER
DECODER
NICAM DEM
SW
FIL
DC-EM
SW
NOISE SHAPER
SW
IC104
AMP
CN101
11.7M (BG)
OSC
DIV
π/2
PHASE RECOVERY
BIT-RATE CLOCK
CLOCK
I²C
MUTE
FREQ SYNTH
XTAL OSC
DIGITAL INTERFACE
NOISE SHAPER
SW
Q106
BUFFER
Q105
BUFFER
(See page 4-26)
PT-97 BOARD (4/7)
CN705
CN702
L OUT
R OUT
STD OUT
CN701
VIDEO OUT
TU AU(L)
TU AU(R)
To AUDIO BLOCK
TU STD
TU V
To VIDEO BLOCK 2
RV101
RECEIVE SEPARATION
AF1
AF2
ANTI-ATLASING
DEMATRIX AND DE-EMPHASIS
E1 L.A
E2 R.B
AF SW
SOURSE SELECTOR
L
R
CONTROL
IC101
ZWEITON DEMOD
ANTI-ATLASING 54.7KHz
117Hz
274Hz
RESET
LOGIC
X101 10MHz
OSC
FREQ CONT
CLOCK
SUPPLY
POWER ON RESET
I²C-BUS TRANSCEIVER
12V

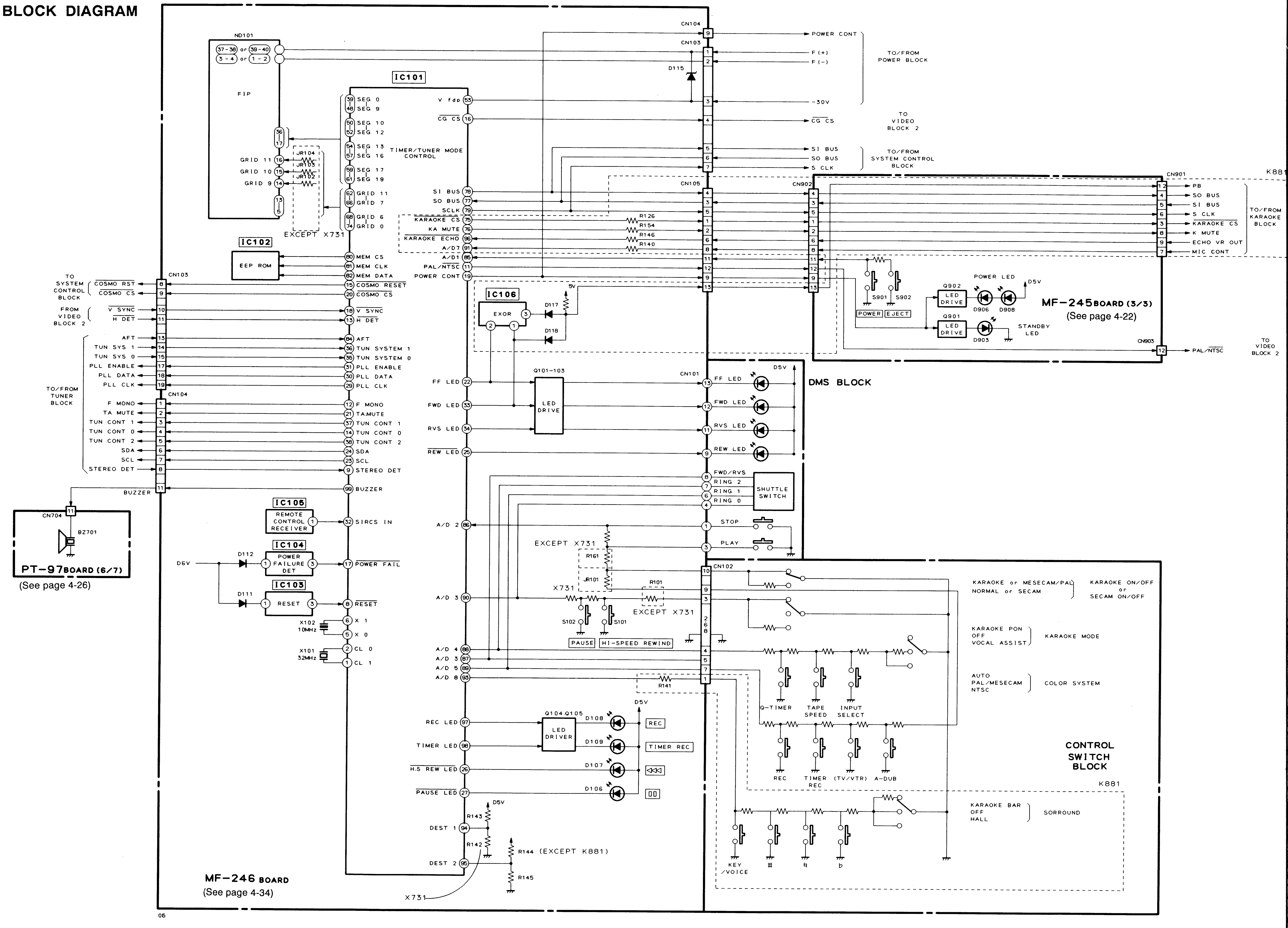

PT-97 BOARD (5/7)
(See page 4-26)
RF701
RF MODULATOR
IN
OUT
AERIAL
SPLITER
TV
MIX
VTR
RF MOD
TU701 TU+IF DEMODULATOR
UHF/VHF
IF
AGC
CLK
DATA
ENABLE
BM (12V)
BPL (5V)
BTL (30V)
12V
5V
Q701
30V REG
DC 35V
CN702
FROM VIDEO BLOCK 2
MOD V
FROM AUDIO BLOCK
MOD A
D6V
Q712, 713
MOD CONT SW
S701
AUTO M
ON
OFF
FROM SYSTEM CONTROL BLOCK
3.58 NTSC
CN701
Q710, 711
SWITCH
CN703
PLL CLK
PLL DATA
PLL ENABLE
AFT
Q702
LEVEL ADJ
CN704
To/FROM TIMER/TUNER MODE CONTROL BLOCK
TUN CONT1
TUN CONT0
TUN CONT2
CN703
SYS 1
SYS 0
05

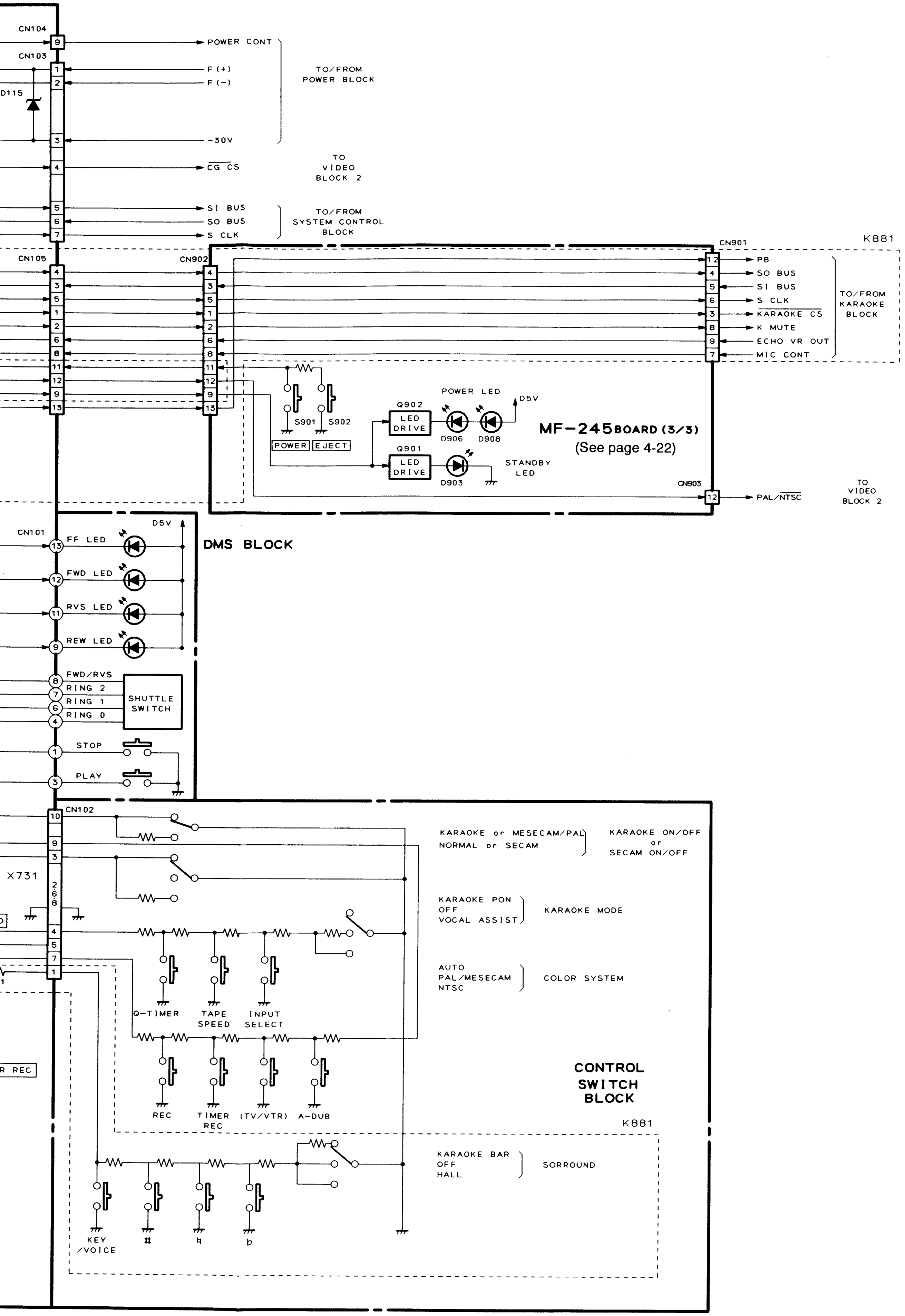
• SLV-736EE/X731/X821


(See page 4-26)
PT-97
BOARD (4/7)
IC104
AMP
CN101
CN705
CN702
L OUT
R OUT
STD OUT
VIDEO OUT
CN701
TU AU(L)
TU AU(R)
TU STD
TU V
To AUDIO BLOCK
To VIDEO BLOCK 2

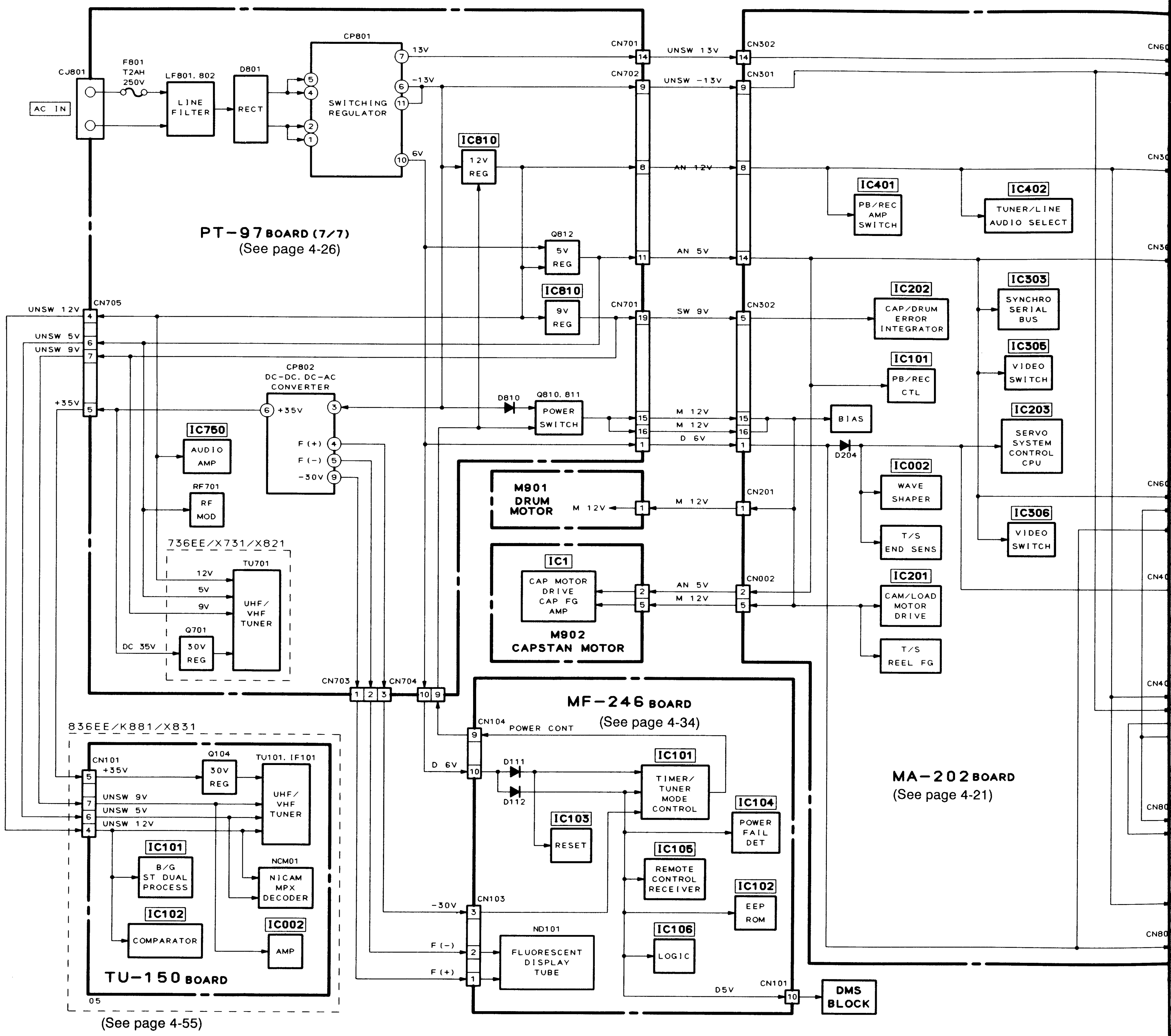

PT-97 BOARD (5/7)
(See page 4-26)
RF701
RF MODULATOR
IN
OUT
AERIAL
SPLITER
MIX
TV
VTR
RF MOD
TU701 TU+IF DEMODULATOR
UHF/VHF
IF
AGC
CLK
DATA
ENABLE
BM(12V)
BPL(5V)
BTL(30V)
12V
5V
TRAP
SAW FILTER
VIF AMP
VIDEO DET
fs TRAP
BNC
RF AGC
VIF AGC
AFT DET
SIF DET
fs BPF
LIMITER
SOUND DET
Vcc
9V
Q703
BUFFER
CN701
TU V
To VIDEO BLOCK 2
CN702
TU STD
TU AU(L)
TU AU(R)
To AUDIO BLOCK
JW703
JW704
736EE/X821
Q701
30V REG
DC 35V
FROM VIDEO BLOCK 2
MOD V
FROM AUDIO BLOCK
MOD A
D6V
Q712, 713
MOD CONT SW
S701
AUTO M
ON
OFF
Q710, 711
SWITCH
FROM SYSTEM CONTROL BLOCK
3.58 NTSC
CN703
PLL CLK
PLL DATA
PLL ENABLE
AFT
Q702
LEVEL ADJ
CN704
To/FROM TIMER/TUNER MODE CONTROL BLOCK
TUN CONT1
TUN CONT0
TUN CONT2
Q718
FL752
6.5MHz B.P.F
Q714, 715, 719
Q717
FL751
6MHz B.P.F
Q716
FL750
5.5MHz B.P.F
IC750
COMPARATOR
SYS 1
SYS 0
05

3-8. MODE CONTROL BLOCK DIAGRAM

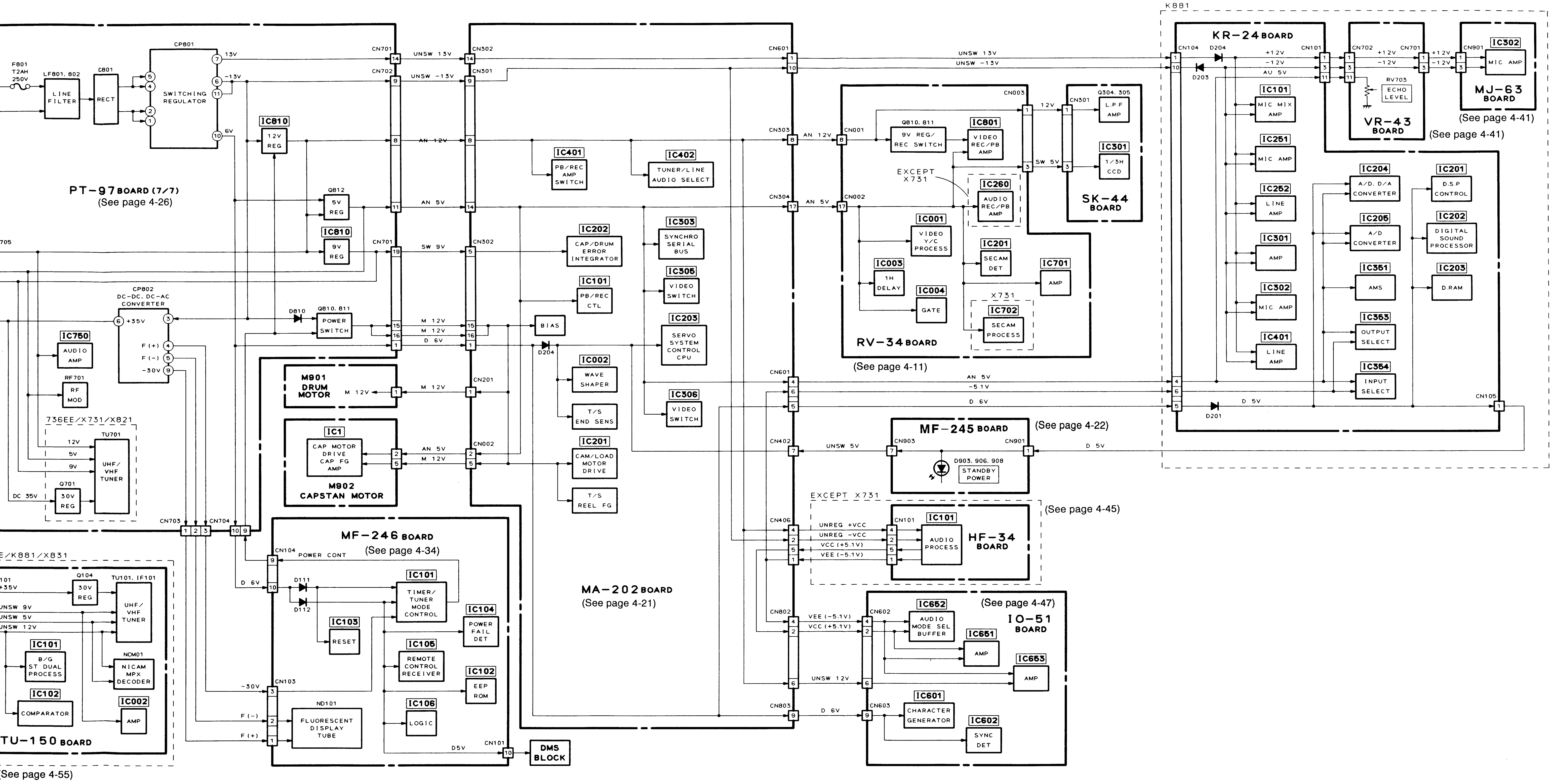

ND101
FIP
IC101
TIMER/TUNER MODE CONTROL
IC102
EEP ROM
IC106
EXOR
IC105
REMOTE CONTROL RECEIVER
IC104
POWER FAILURE DET
IC103
RESET
EXCEPT X731
GRID 11
GRID 10
GRID 9
JR104
JR103
JR102
SEG 0
SEG 9
SEG 10
SEG 12
SEG 13
SEG 16
SEG 17
SEG 19
GRID 7
GRID 6
GRID 0
V fdp
CG CS
SI BUS
SO BUS
SCLK
KARAOKE CS
KA MUTE
KARAOKE ECHO
A/D 7
A/D 1
PAL/NTSC
POWER CONT
MEM CS
MEM CLK
MEM DATA
COSMO RESET
COSMO CS
V SYNC
H DET
AFT
TUN SYSTEM 1
TUN SYSTEM 0
PLL ENABLE
PLL DATA
PLL CLK
F MONO
TA MUTE
TUN CONT 1
TUN CONT 0
TUN CONT 2
SDA
SCL
STEREO DET
BUZZER
SIRCS IN
POWER FAIL
RESET
X 1
X 0
CL 0
CL 1
X102 10MHz
X101 32MHz
D6V
D112
D111
TO SYSTEM CONTROL BLOCK
COSMO RST
COSMO CS
FROM VIDEO BLOCK 2
V SYNC
H DET
TO/FROM TUNER BLOCK
TUN SYS 1
TUN SYS 0
CN103
CN104
CN704
BZ701
PT-97 BOARD (6/7)
(See page 4-26)
POWER CONT
F (+)
F (-)
-30V
TO/FROM POWER BLOCK
D115
TO VIDEO BLOCK 2
TO/FROM SYSTEM CONTROL BLOCK
S CLK
CN105
CN902
CN901
CN903
R126
R154
R146
R140
D117
D118
5V
PB
K MUTE
ECHO VR OUT
MIC CONT
TO/FROM KARAOKE BLOCK
K881
POWER LED
D5V
Q902
Q901
LED DRIVE
D906
D908
D903
STANDBY LED
S901
S902
POWER
EJECT
MF-245 BOARD (3/3)
(See page 4-22)
PAL/NTSC
TO VIDEO BLOCK 2
DMS BLOCK
Q101-103
LED DRIVE
CN101
FF LED
FWD LED
RVS LED
REW LED
FWD/RVS
RING 2
RING 1
RING 0
SHUTTLE SWITCH
A/D 2
STOP
PLAY
R161
JR101
X731
A/D 3
R101
S102
S101
PAUSE
HI-SPEED REWIND
CN102
A/D 4
A/D 5
A/D 8
R141
Q104,Q105
LED DRIVER
D108
D109
D107
D106
REC LED
TIMER LED
H.S REW LED
PAUSE LED
REC
TIMER REC
⏪
⏸
R143
R142
R144 (EXCEPT K881)
R145
DEST 1
DEST 2
MF-246 BOARD
(See page 4-34)
KARAOKE or MESECAM/PAL
NORMAL or SECAM
KARAOKE ON/OFF or SECAM ON/OFF
KARAOKE PON
OFF
VOCAL ASSIST
KARAOKE MODE
AUTO
PAL/MESECAM
NTSC
COLOR SYSTEM
Q-TIMER
TAPE SPEED
INPUT SELECT
REC
TIMER REC
(TV/VTR)
A-DUB
CONTROL SWITCH BLOCK
KARAOKE BAR
OFF
HALL
SORROUND
KEY /VOICE
#
♮
♭
05


CN104
CN103
D115
POWER CONT
F (+)
F (−)
−30V
TO/FROM POWER BLOCK
CG CS
TO VIDEO BLOCK 2
SI BUS
SO BUS
S CLK
TO/FROM SYSTEM CONTROL BLOCK
CN105
CN902
CN901
K881
PB
SO BUS
SI BUS
S CLK
KARAOKE CS
K MUTE
ECHO VR OUT
MIC CONT
TO/FROM KARAOKE BLOCK
S901
S902
POWER
EJECT
Q902
LED DRIVE
POWER LED
D5V
D906
D908
Q901
LED DRIVE
D903
STANDBY LED
MF-245 BOARD (3/3)
(See page 4-22)
CN903
PAL/NTSC
TO VIDEO BLOCK 2
CN101
D5V
FF LED
FWD LED
RVS LED
REW LED
DMS BLOCK
FWD/RVS
RING 2
RING 1
RING 0
SHUTTLE SWITCH
STOP
PLAY
CN102
X731
KARAOKE or MESECAM/PAL
NORMAL or SECAM
KARAOKE ON/OFF or SECAM ON/OFF
KARAOKE PON
OFF
VOCAL ASSIST
KARAOKE MODE
AUTO
PAL/MESECAM
NTSC
COLOR SYSTEM
Q-TIMER
TAPE SPEED
INPUT SELECT
REC
TIMER REC
(TV/VTR)
A-DUB
R REC
CONTROL SWITCH BLOCK
K881
KARAOKE BAR
OFF
HALL
SORROUND
KEY /VOICE
#
♮
♭

3-9. POWER SUPPLY BLOCK DIAGRAM

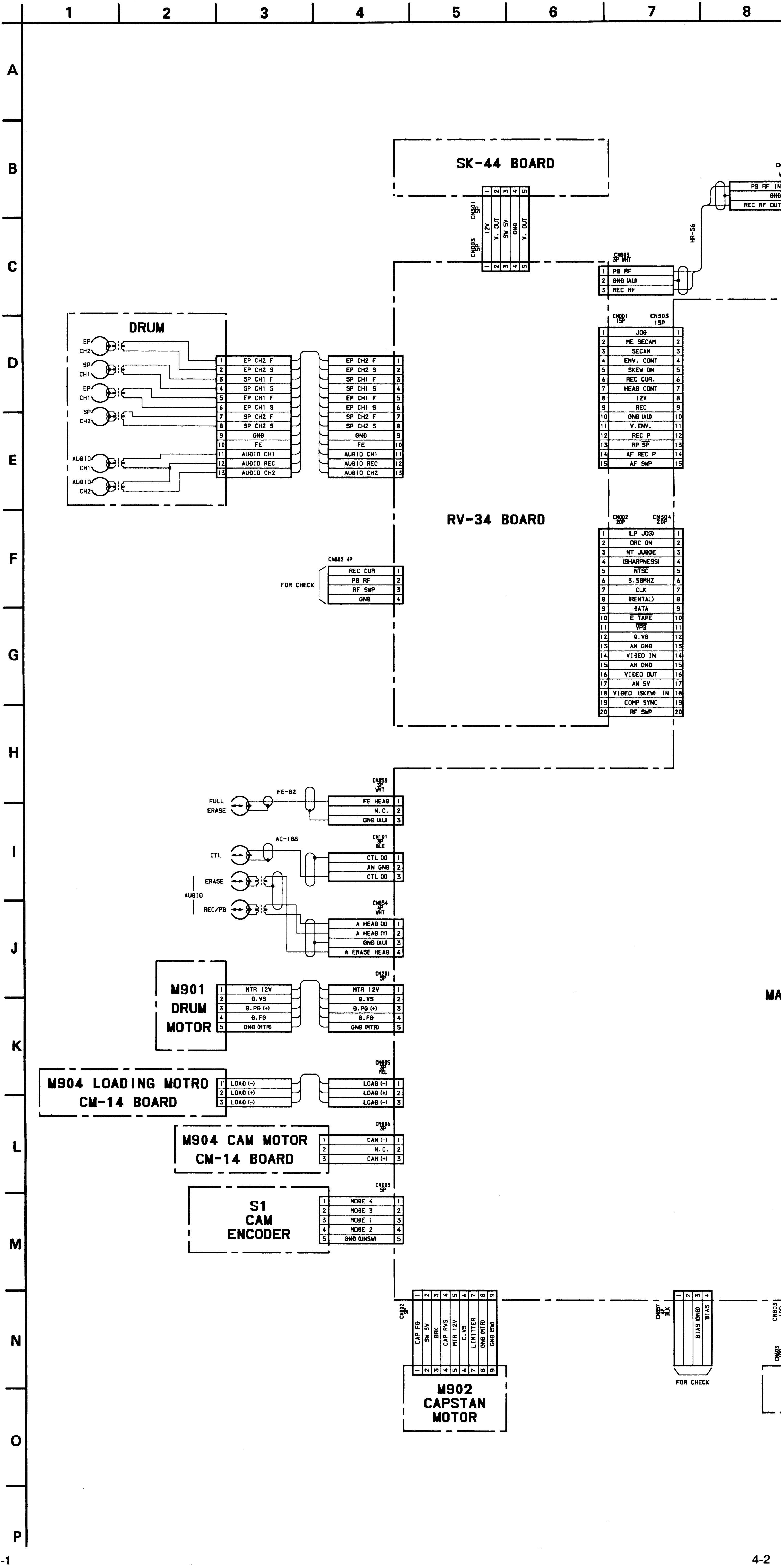

CJ801
AC IN
F801
T2AH
250V
LF801, 802
LINE FILTER
D801
RECT
CP801
SWITCHING REGULATOR
13V
−13V
6V
IC810
12V REG
Q812
5V REG
IC610
9V REG
PT-97 BOARD (7/7)
(See page 4-26)
CN701
CN702
UNSW 13V
UNSW −13V
AN 12V
AN 5V
SW 9V
CN302
CN301
CN705
UNSW 12V
UNSW 5V
UNSW 9V
+35V
CP802
DC-DC, DC-AC CONVERTER
F (+)
F (−)
−30V
D810
Q810, 811
POWER SWITCH
M 12V
M 12V
D 6V
IC750
AUDIO AMP
RF701
RF MOD
736EE/X731/X821
TU701
12V
5V
9V
UHF/VHF TUNER
Q701
30V REG
DC 35V
CN703
CN704
M901
DRUM MOTOR
M 12V
CN201
IC1
CAP MOTOR DRIVE
CAP FG AMP
M902
CAPSTAN MOTOR
AN 5V
M 12V
CN002
IC401
PB/REC AMP SWITCH
IC402
TUNER/LINE AUDIO SELECT
IC202
CAP/DRUM ERROR INTEGRATOR
IC303
SYNCHRO SERIAL BUS
IC101
PB/REC CTL
IC305
VIDEO SWITCH
BIAS
D204
IC203
SERVO SYSTEM CONTROL CPU
IC002
WAVE SHAPER
T/S END SENS
IC306
VIDEO SWITCH
IC201
CAM/LOAD MOTOR DRIVE
T/S REEL FG
MA-202 BOARD
(See page 4-21)
836EE/K881/X831
CN101
+35V
Q104
30V REG
TU101, IF101
UHF/VHF TUNER
UNSW 9V
UNSW 5V
UNSW 12V
IC101
B/G ST DUAL PROCESS
NCM01
NICAM MPX DECODER
IC102
COMPARATOR
IC002
AMP
TU-150 BOARD
05
(See page 4-55)
MF-246 BOARD
(See page 4-34)
CN104
POWER CONT
D 6V
D111
D112
IC101
TIMER/TUNER MODE CONTROL
IC103
RESET
IC104
POWER FAIL DET
IC105
REMOTE CONTROL RECEIVER
IC102
EEP ROM
CN103
−30V
F (−)
F (+)
ND101
FLUORESCENT DISPLAY TUBE
IC106
LOGIC
D5V
CN101
DMS BLOCK

WER SUPPLY BLOCK DIAGRAM



F801
T2AH
250V
LF801, 802
LINE FILTER
D801
RECT
CP801
SWITCHING REGULATOR
13V
-13V
6V
IC810
12V REG
Q812
5V REG
IC810
9V REG
PT-97 BOARD (7/7)
(See page 4-26)
705
CP802
DC-DC, DC-AC CONVERTER
+35V
F(+)
F(-)
-30V
D810
Q810, 811
POWER SWITCH
IC750
AUDIO AMP
RF701
RF MOD
736EE/X731/X821
TU701
12V
5V
9V
UHF/VHF TUNER
Q701
30V REG
DC 35V
CN703
CN704
CN701
CN702
UNSW 13V
UNSW -13V
AN 12V
AN 5V
SW 9V
M 12V
D 6V
CN302
CN301
CN201
CN002
M901
DRUM MOTOR
M 12V
IC1
CAP MOTOR DRIVE
CAP FG AMP
M902
CAPSTAN MOTOR
AN 5V
M 12V
E/K881/X831
101
+35V
Q104
30V REG
TU101, IF101
UHF/VHF TUNER
UNSW 9V
UNSW 5V
UNSW 12V
IC101
B/G ST DUAL PROCESS
NCM01
NICAM MPX DECODER
IC102
COMPARATOR
IC002
AMP
TU-150 BOARD
(See page 4-55)
MF-246 BOARD
(See page 4-34)
CN104
POWER CONT
D 6V
D111
D112
IC101
TIMER/TUNER MODE CONTROL
IC103
RESET
IC104
POWER FAIL DET
IC105
REMOTE CONTROL RECEIVER
IC102
EEP ROM
IC106
LOGIC
CN103
-30V
F(-)
F(+)
ND101
FLUORESCENT DISPLAY TUBE
D5V
CN101
DMS BLOCK
IC401
PB/REC AMP SWITCH
IC402
TUNER/LINE AUDIO SELECT
IC202
CAP/DRUM ERROR INTEGRATOR
IC101
PB/REC CTL
BIAS
D204
IC002
WAVE SHAPER
T/S END SENS
IC201
CAM/LOAD MOTOR DRIVE
T/S REEL FG
IC303
SYNCHRO SERIAL BUS
IC305
VIDEO SWITCH
IC203
SERVO SYSTEM CONTROL CPU
IC306
VIDEO SWITCH
MA-202 BOARD
(See page 4-21)
CN601
CN303
CN304
CN402
CN406
CN802
CN803
AN 12V
AN 5V
CN001
CN002
Q810, 811
9V REG/REC SWITCH
IC801
VIDEO REC/PB AMP
CN003
12V
SW 5V
EXCEPT X731
IC260
AUDIO REC/PB AMP
IC001
VIDEO Y/C PROCESS
IC003
1H DELAY
IC004
GATE
IC201
SECAM DET
IC701
AMP
X731
IC702
SECAM PROCESS
RV-34 BOARD
(See page 4-11)
CN301
Q304, 305
L.P.F AMP
IC301
1/3H CCD
SK-44 BOARD
AN 5V
-5.1V
D 6V
MF-245 BOARD
(See page 4-22)
CN903
CN901
UNSW 5V
D 5V
D903, 906, 908
STANDBY POWER
EXCEPT X731
CN101
UNREG +VCC
UNREG -VCC
VCC (+5.1V)
VEE (-5.1V)
IC101
AUDIO PROCESS
HF-34 BOARD
(See page 4-45)
(See page 4-47)
IO-51 BOARD
CN602
VEE (-5.1V)
VCC (+5.1V)
IC652
AUDIO MODE SEL BUFFER
IC651
AMP
IC653
AMP
UNSW 12V
CN603
D 6V
IC601
CHARACTER GENERATOR
IC602
SYNC DET
K881
KR-24 BOARD
CN104
D204
D203
+12V
-12V
AU 5V
CN101
IC101
MIC MIX AMP
IC251
MIC AMP
IC252
LINE AMP
IC301
AMP
IC302
MIC AMP
IC401
LINE AMP
CN702
CN701
RV703
ECHO LEVEL
VR-43 BOARD
(See page 4-41)
CN901
IC302
MIC AMP
MJ-63 BOARD
(See page 4-41)
IC204
A/D, D/A CONVERTER
IC205
A/D CONVERTER
IC351
AMS
IC353
OUTPUT SELECT
IC354
INPUT SELECT
IC201
D.S.P CONTROL
IC202
DIGITAL SOUND PROCESSOR
IC203
D.RAM
D 5V
D201
CN105

4-1. FRAME SCHEMATIC DIAGRAM


SK-44 BOARD
CN301 5P
CN003 5P
12V
V. OUT
SW 5V
GND
V. OUT
HR-56
PB RF IN
GND
REC RF OUT
CN803 3P WHT
PB RF
GND (AU)
REC RF
CN001 15P
CN303 15P
JOG
ME SECAM
SECAM
ENV. CONT
SKEW ON
REC CUR.
HEAD CONT
12V
REC
GND (AU)
V.ENV.
REC P
RP SP
AF REC P
AF SWP
DRUM
EP CH2
SP CH1
EP CH1
SP CH2
AUDIO CH1
AUDIO CH2
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
GND
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
RV-34 BOARD
CN002 20P
CN304 20P
LP JOG
ORC ON
NT JUDGE
(SHARPNESS)
NTSC
3.58MHZ
CLK
(RENTAL)
DATA
E TAPE
VPB
Q.VD
AN GND
VIDEO IN
AN GND
VIDEO OUT
AN 5V
VIDEO (SKEW) IN
COMP SYNC
RF SWP
CN802 4P
FOR CHECK
REC CUR
PB RF
RF SWP
GND
FULL ERASE
FE-82
CN855 3P WHT
FE HEAD
N.C.
GND (AU)
AC-188
CN101 3P BLK
CTL
CTL (X)
AN GND
CTL (X)
AUDIO
ERASE
REC/PB
CN854 4P WHT
A HEAD (X)
A HEAD (Y)
GND (AU)
A ERASE HEAD
M901 DRUM MOTOR
CN201 5P
MTR 12V
D.VS
D.PG (+)
D.FG
GND (MTR)
M904 LOADING MOTRO CM-14 BOARD
CN005 3P YEL
LOAD (-)
LOAD (+)
LOAD (-)
M904 CAM MOTOR CM-14 BOARD
CN006 3P
CAM (-)
N.C.
CAM (+)
S1 CAM ENCODER
CN003 5P
MODE 4
MODE 3
MODE 1
MODE 2
GND (UNSW)
CN002 9P
CAP FG
SW 5V
BRK
CAP RVS
MTR 12V
C.VS
LIMITTER
GND (MTR)
GND (SW)
M902 CAPSTAN MOTOR
CN857 3P BLK
BIAS (GND)
BIAS
FOR CHECK
CN803
MA

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- ○——— : indicates a lead wire mounted on the component side.
- ●——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ■ : Parts mounted on the conductor side.
- ▒ : Pattern from the side which enables seeing.
- ░ : Pattern of the rear side.*
- Circled numbers refer to waveforms.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

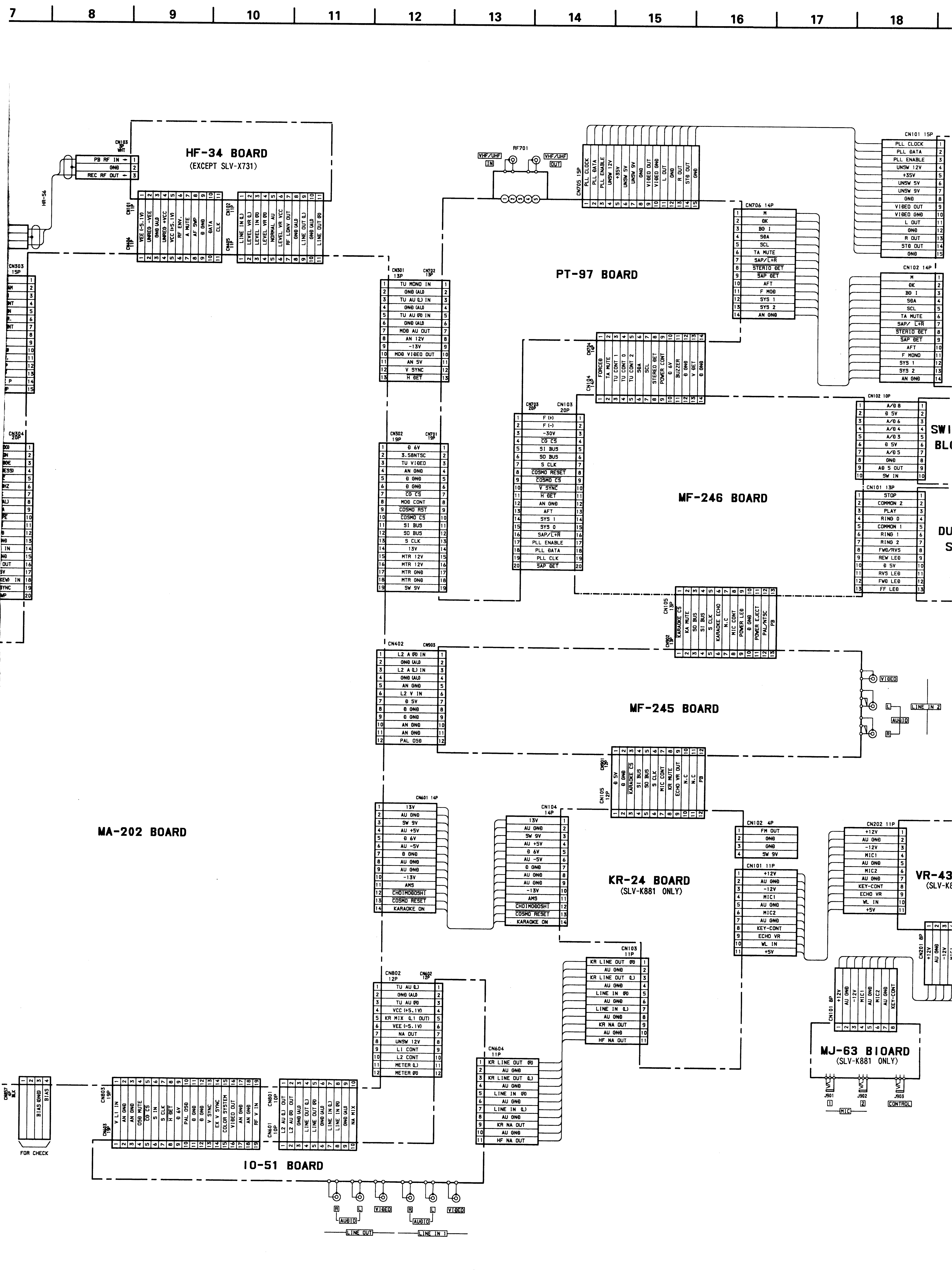
For schematic diagram:

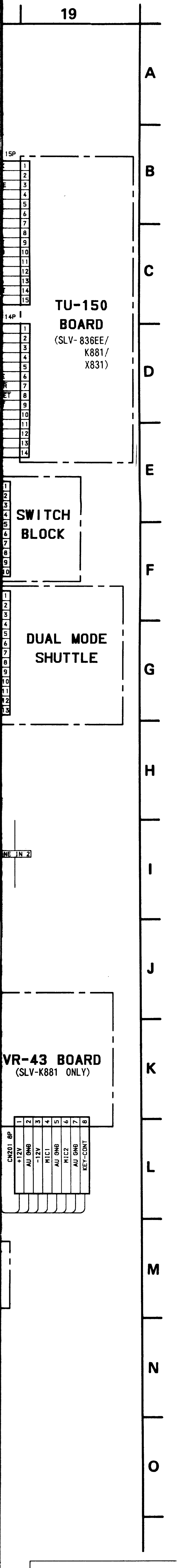
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.*
- ━━━ : B + Line.*
- ━ ━ ━ : B − Line.*
- ⇨ : IN/OUT direction of B line (+ , −).*
- Circled numbers refer to waveforms.*
- Voltages are dc between measurement point.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

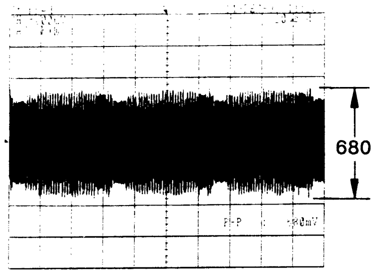
- * : indicated by the color red.


7
8
9
10
11
12
13
14
15
16
17
18
HF-34 BOARD
(EXCEPT SLV-X731)
CN103 3P WHT
PB RF IN
GND
REC RF OUT
HR-56
CN101 11P
VEE (-5.1V)
UNREG -VEE
GND (AU)
UNREG +VCC
VCC (+5.1V)
RF ENV.
A MUTE
AF SWP
D GND
DATA
CLK
CN102 11P
LINE IN (L)
LEVEL VR (L)
LEVEL IN (R)
LEVEL VR (R)
NORMAL AU
LEVEL VR VCC
RF LDNV OUT
GND (AU)
LINE OUT (L)
GND (AU)
LINE OUT (R)
CN404 11P
CN405 11P
CN303 15P
CN304 20P
RF701
VHF/UHF IN
VHF/UHF OUT
CN705 15P
PLL CLOCK
PLL DATA
PLL ENABLE
UNSW 12V
+35V
UNSW 5V
UNSW 9V
GND
VIDEO OUT
VIDEO GND
L OUT
GND
R OUT
STD OUT
GND
PT-97 BOARD
CN706 14P
M
DK
DG I
SDA
SCL
TA MUTE
SAP/L+R
STERIO DET
SAP DET
AFT
F MOD
SYS 1
SYS 2
AN GND
CN101 15P
PLL CLOCK
PLL DATA
PLL ENABLE
UNSW 12V
+35V
UNSW 5V
UNSW 9V
GND
VIDEO OUT
VIDEO GND
L OUT
GND
R OUT
STD OUT
GND
CN102 14P
M
DK
DG I
SDA
SCL
TA MUTE
SAP/ L+R
STERIO DET
SAP DET
AFT
F MONO
SYS 1
SYS 2
AN GND
CN301 13P
CN702 13P
TU MONO IN
GND (AU)
TU AU (L) IN
GND (AU)
TU AU (R) IN
GND (AU)
MOD AU OUT
AN 12V
-13V
MOD VIDEO OUT
AN 5V
V SYNC
H DET
CN704 14P
CN104 14P
FORCED
TA MUTE
TU CONT 1
TU CONT 0
TU CONT 2
SDA
SCL
STEREO DET
POWER CONT
D 5V
BUZZER
V DET
D GND
CN302 19P
CN701 19P
D 6V
3.58NTSC
TU VIDEO
AN GND
D GND
D GND
CO CS
MOD CONT
COSMO RST
COSMO CS
SI BUS
SO BUS
S CLK
13V
MTR 12V
MTR 12V
MTR GND
MTR GND
SW 9V
CN703 20P
CN103 20P
F (+)
F (-)
-30V
CO CS
SI BUS
SO BUS
S CLK
COSMO RESET
COSMO CS
V SYNC
H DET
AN GND
AFT
SYS 1
SYS 0
SAP/L+R
PLL ENABLE
PLL DATA
PLL CLK
SAP DET
MF-246 BOARD
CN102 10P
A/D 8
D 5V
A/D 6
A/D 4
A/D 3
D 5V
A/D 5
GND
AD 5 OUT
SW IN
SWI
BLO
CN101 13P
STOP
COMMON 2
PLAY
RING 0
COMMON 1
RING 1
RING 2
FWD/RVS
REW LED
D 5V
RVS LED
FWD LED
FF LED
DU
S
CN105 13P
CN902 13P
KARAOKE CS
KA MUTE
SO BUS
SI BUS
S CLK
KARAOKE ECHO
N.C
MIC CONT
POWER LED
D GND
POWER EJECT
PAL/NTSC
PB
CN402
CN903
L2 A (R) IN
GND (AU)
L2 A (L) IN
GND (AU)
AN GND
L2 V IN
D 5V
D GND
D GND
AN GND
AN GND
PAL OSD
MF-245 BOARD
VIDEO
L
R
AUDIO
LINE IN 2
CN901 12P
CN105 12P
D 5V
D GND
KARAOKE CS
SI BUS
SO BUS
S CLK
MIC CONT
KR MUTE
ECHO VR OUT
N.C
N.C
PB
MA-202 BOARD
CN601 14P
13V
AU GND
SW 9V
AU +5V
D 6V
AU -5V
D GND
AU GND
AU GND
-13V
AMS
CHOIMODOSHI
COSMO RESET
KARAOKE ON
CN104 14P
KR-24 BOARD
(SLV-K881 ONLY)
CN102 4P
FM OUT
GND
GND
SW 9V
CN101 11P
+12V
AU GND
-12V
MIC1
AU GND
MIC2
AU GND
KEY-CONT
ECHO VR
WL IN
+5V
CN202 11P
+12V
AU GND
-12V
MIC1
AU GND
MIC2
AU GND
KEY-CONT
ECHO VR
WL IN
+5V
VR-43
(SLV-K
CN201 8P
CN103 11P
KR LINE OUT (R)
AU GND
KR LINE OUT (L)
AU GND
LINE IN (R)
AU GND
LINE IN (L)
AU GND
KR NA OUT
AU GND
HF NA OUT
CN101 8P
+12V
AU GND
-12V
MIC1
AU GND
MIC2
AU GND
KEY-CONT
MJ-63 BOARD
(SLV-K881 ONLY)
J901
J902
J903
1
2
MIC
CONTROL
CN802 12P
CN602 12P
TU AU (L)
GND (AU)
TU AU (R)
VCC (+5.1V)
KR MIX (L1 OUT)
VEE (-5.1V)
NA OUT
UNSW 12V
L1 CONT
L2 CONT
METER (L)
METER (R)
CN604 11P
KR LINE OUT (R)
AU GND
KR LINE OUT (L)
AU GND
LINE IN (R)
AU GND
LINE IN (L)
AU GND
KR NA OUT
AU GND
HF NA OUT
CN852 4P BLK
BIAS (GND)
BIAS
FOR CHECK
CN803 19P
CN603 19P
V L1 IN
AN GND
OSD MUTE
CO CS
S IN
S CLK
H DET
D 6V
PAL OSD
D GND
D GND
V SYNC
EX V SYNC
COLOR SYSTEM
VIDEO OUT
AN GND
AN GND
RF V IN
CN801 10P
CN601 10P
L2 AU (L) OUT
L2 AU (R) OUT
GND (AU)
LINE OUT (L)
LINE OUT (R)
GND (AU)
LINE IN (L)
LINE IN (R)
GND (AU)
NA MIX
IO-51 BOARD
R
L
VIDEO
R
L
VIDEO
AUDIO
AUDIO
LINE OUT
LINE IN 1

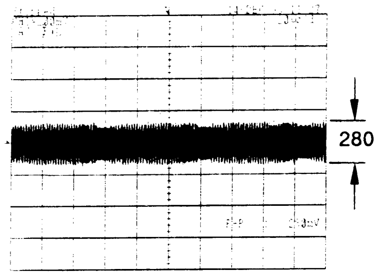

19
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
15P
14P
TU-150
BOARD
(SLV-836EE/
K881/
X831)
SWITCH
BLOCK
DUAL MODE
SHUTTLE
VR-43 BOARD
(SLV-K881 ONLY)
CN201 8P
+12V
AU GND
-12V
MIC1
AU GND
MIC2
AU GND
KEY-CONT

RV-34 BOARD (NTSC 3.58 MODE)

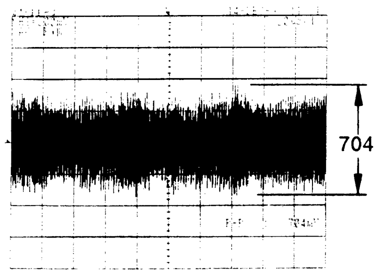
❶ IC801 ④ REC 20μsec/DIV



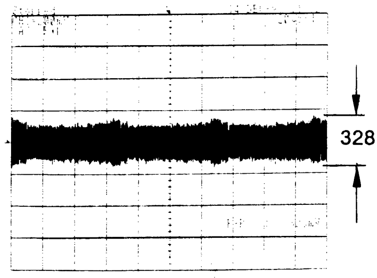
❷ IC801 ㉙ REC 20μsec/DIV



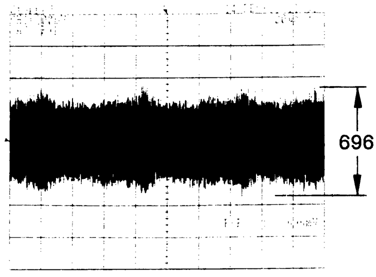
❸ IC801 ㉓ PB 20μsec/DIV



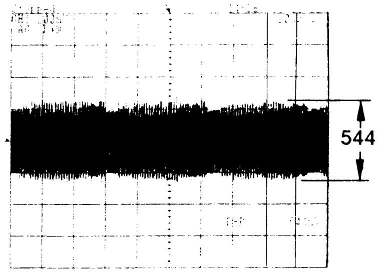
❹ IC801 ㉕ PB 20μsec/DIV



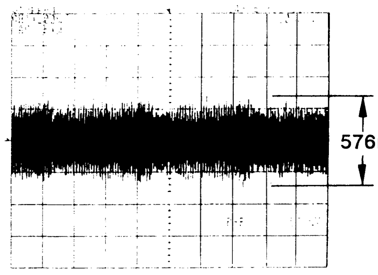
❺ IC801 ㉗ PB 20μsec/DIV



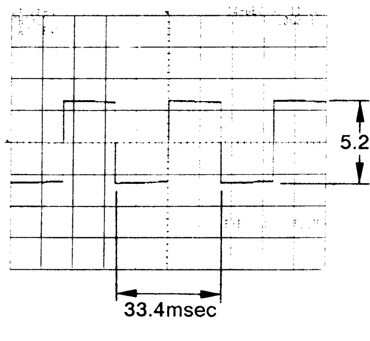
❻ CN802 ① REC 20μsec/DIV



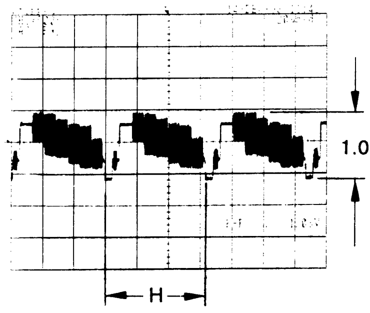
❼ CN802 ② PB 20μsec



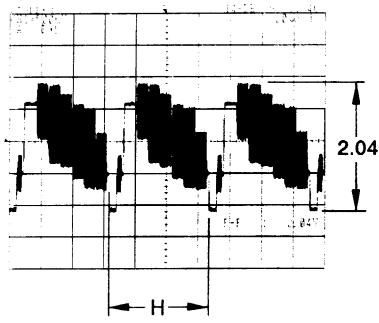
❽ CN802 ③ REC/PB



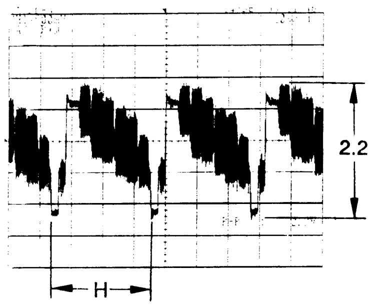
❾ IC001 ㉖ REC



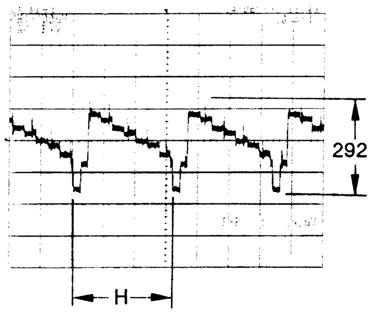
❿ IC001 ㉘ REC



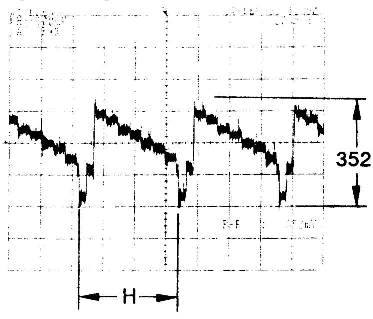
❿ IC001 ㉘ PB



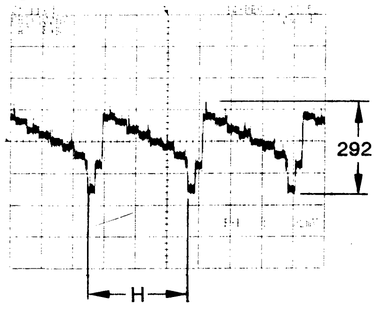
⓫ IC001 ㉝ REC



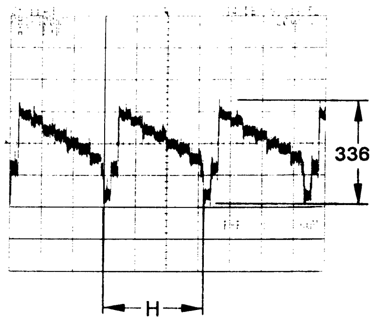
⓫ IC001 ㉝ PB



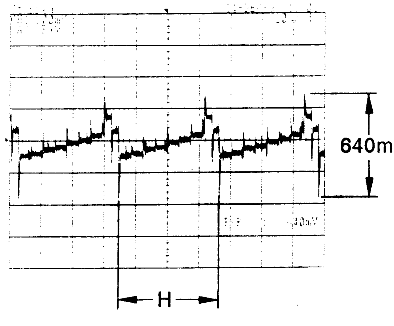
⓬ IC001 ㉜ REC



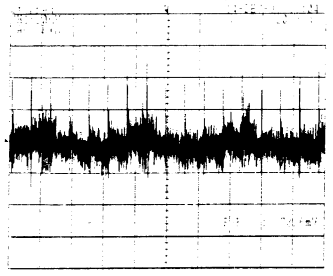
⓬ IC001 ㉜ PB



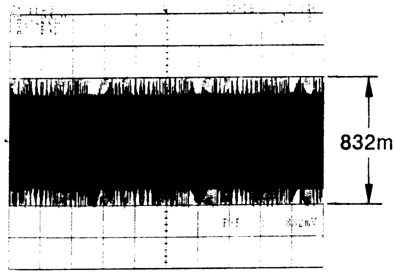
⓭ IC001 ㊺ REC



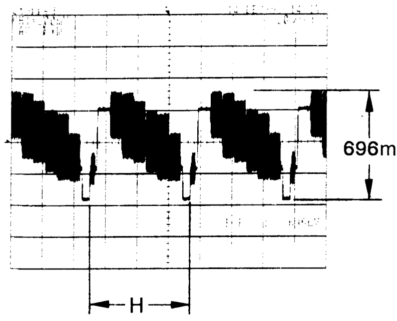
⓮ IC001 ㊼ REC 20 mV/DIV
20μsec/DIV



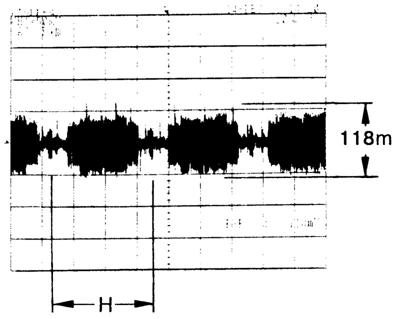
⓯ IC001 ㊿ REC 20μsec/DIV



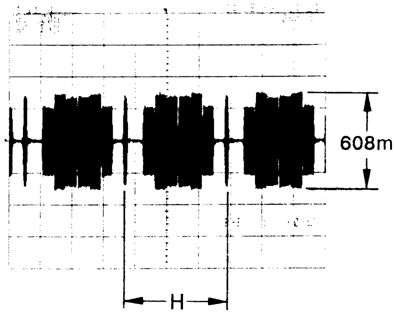
⓰ IC001 ⑳ REC



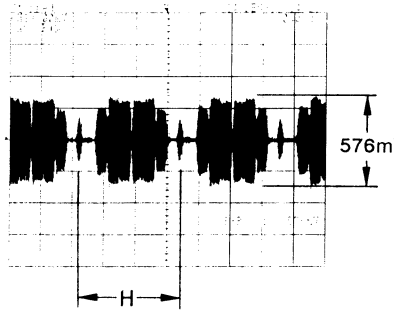
⓱ IC001 ⑱ REC



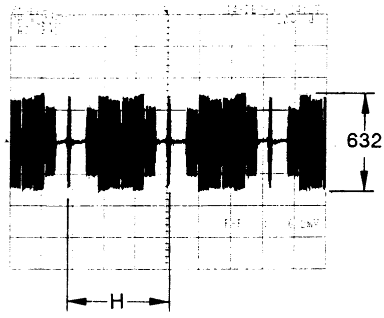
⓲ IC001 ⑯ REC



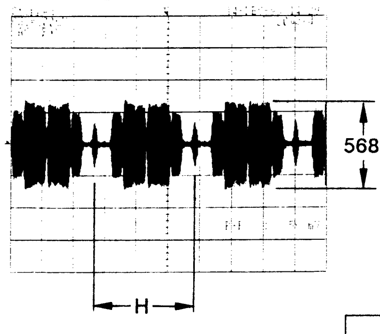
⓲ IC001 ⑯ PB



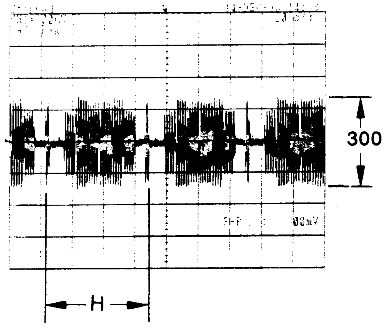
⓳ IC001 ⑭ REC



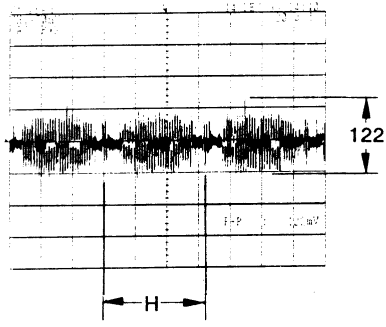
⓳ IC001 ⑭ PB



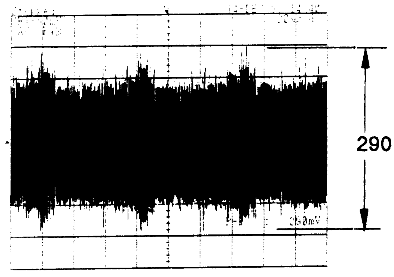
⓴ IC001 (53) REC



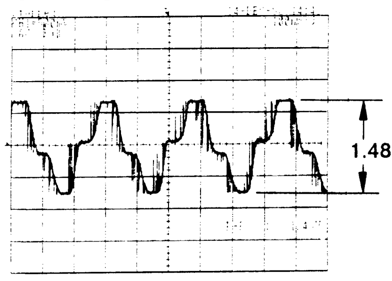
㉑ IC001 (51) PB



㉒ IC001 ㊸ PB 20μsec/DIV

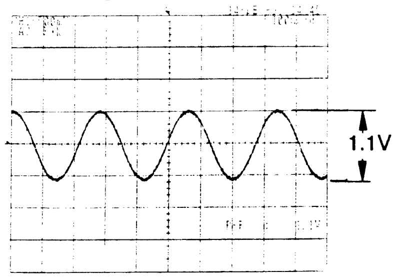


㉓ IC001 ⑥ REC/PB



3.58MHz

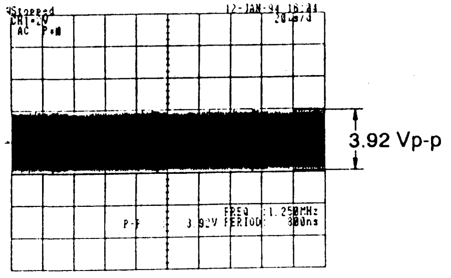
㉔ IC001 ⑦ REC/PB



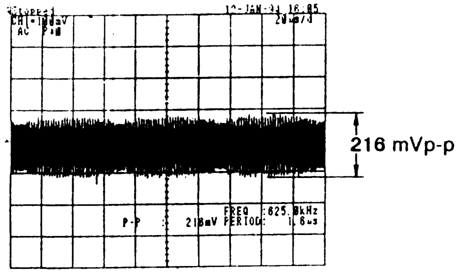
3.58MHz

RV-34 BOARD (PAL MODE)

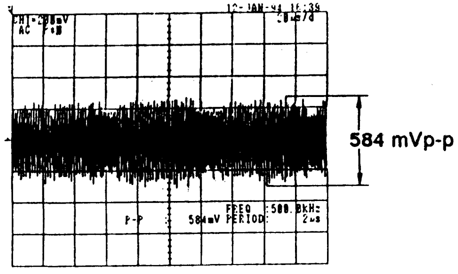
❶IC801④ REC 20*μ*sec/DIV



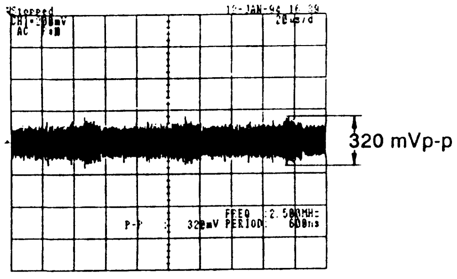
❷IC801㉙ REC 20*μ*sec/DIV



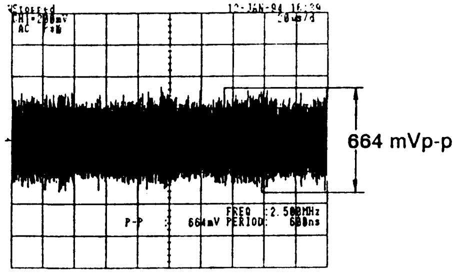
❸IC801㉓ PB 20*μ*sec/DIV



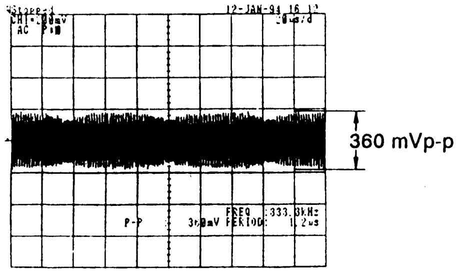
❹IC801㉕ PB 20*μ*sec/DIV



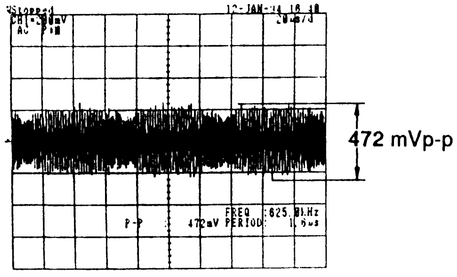
❺IC801㉗ PB 20*μ*sec/DIV



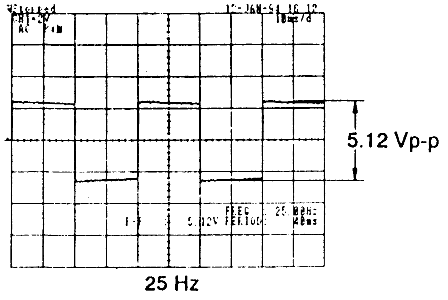
❻CN802① REC 20*μ*sec/DIV



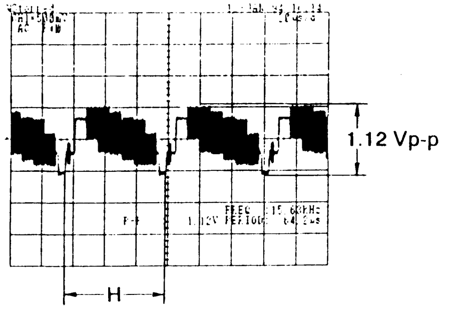
❼CN802② PB 20*μ*sec/DIV



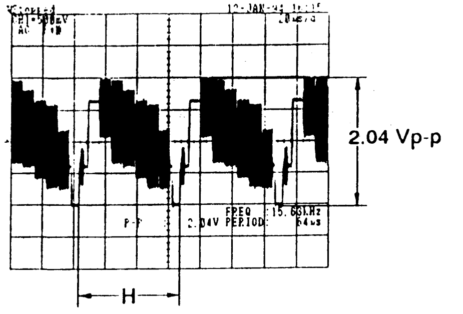
❽CN802③ REC/PB



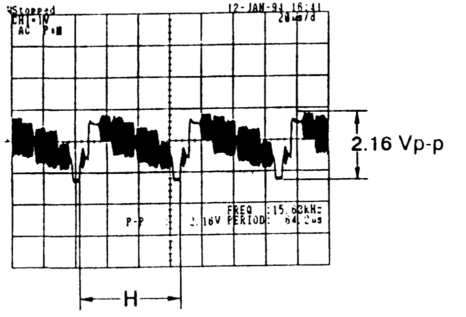
❾IC001㉖ REC



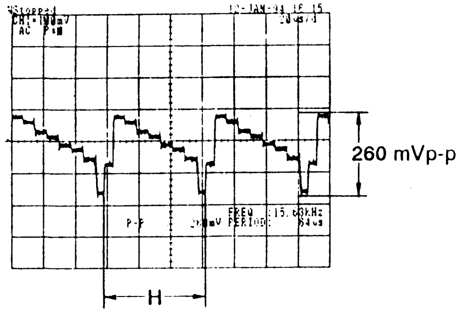
❿IC001㉘ REC



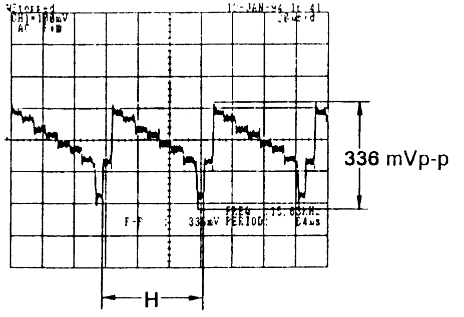
❿IC001㉘ PB



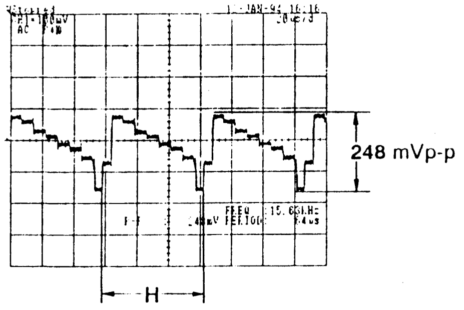
⓫IC001㉝ REC



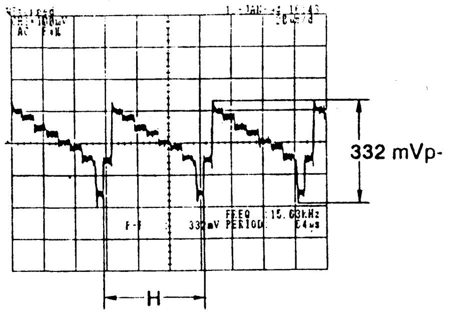
⓫IC001㉝ PB



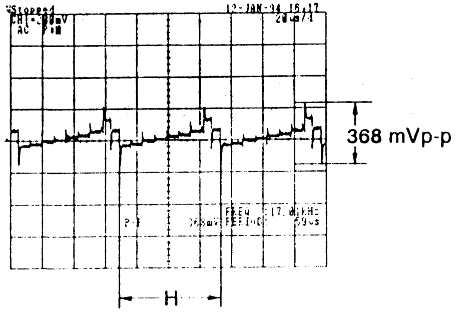
⓬IC001㉜ REC



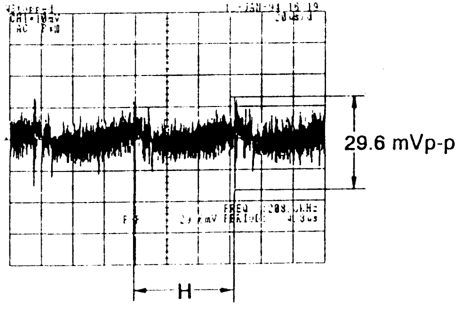
⓬IC001㉜ PB



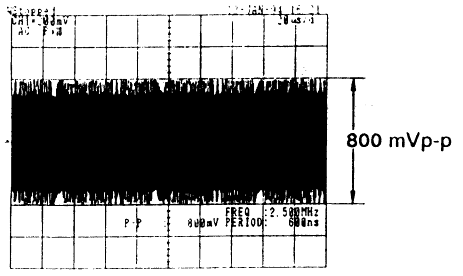
⓭IC001㊺ REC



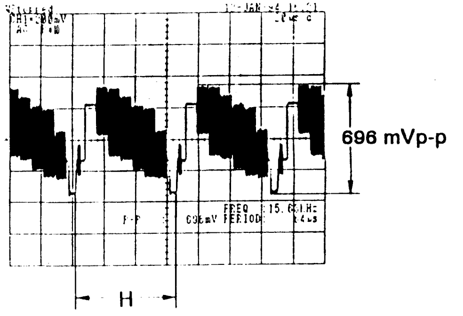
⓮IC001㊼ REC



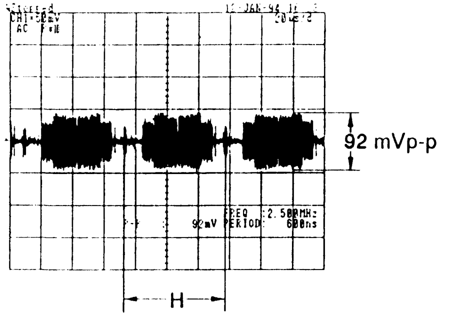
⓯IC001㊿ REC 20*μ*sec/DIV



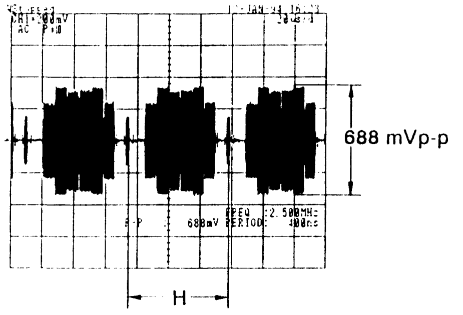
⓰IC001⑳ REC



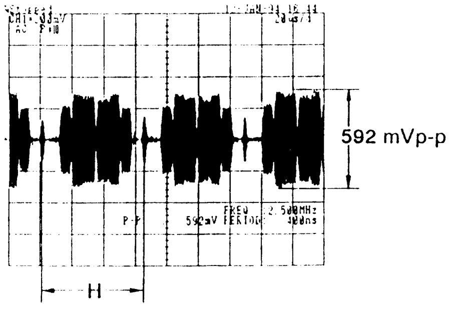
⓱IC001⑱ REC



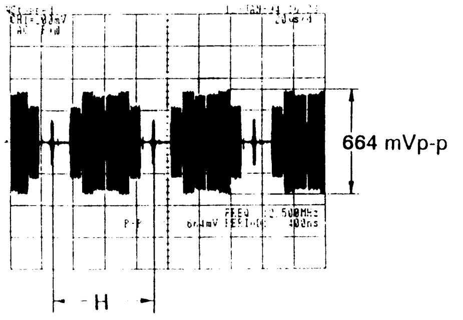
⓲IC001⑯ REC



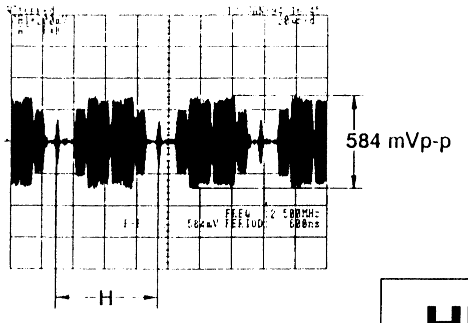
⓲IC001⑯ PB



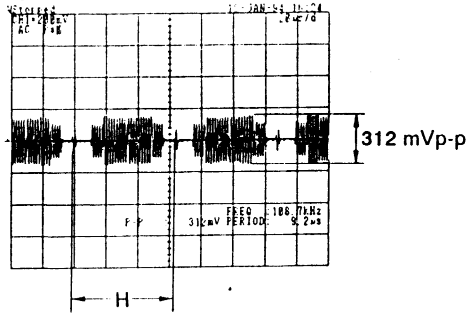
⓳IC001⑭ REC



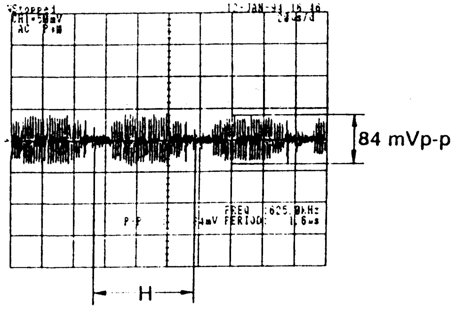
⓳IC001⑭ PB



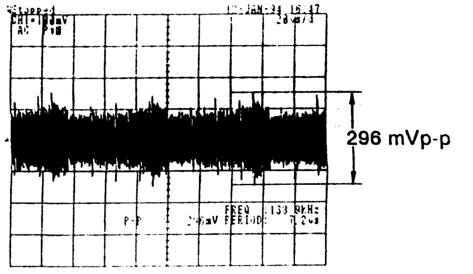
⓴IC001(53) REC



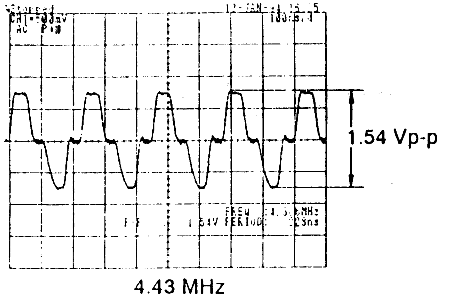
(21)IC001(51) PB



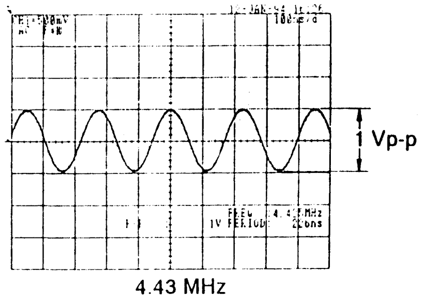
(22)IC001㊸ PB



(23)IC001⑥ REC/PB



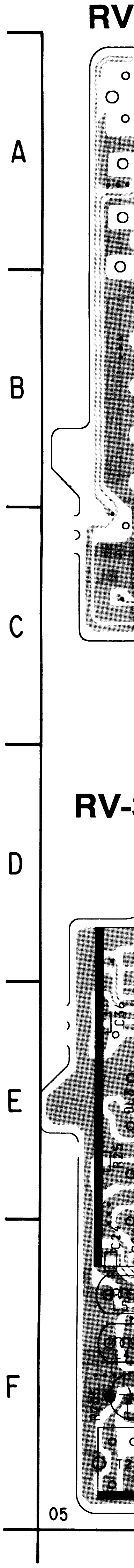
(24)IC001⑦ REC/PB



4-2. PRINTED W

RV-34 (HEAD AMP, V

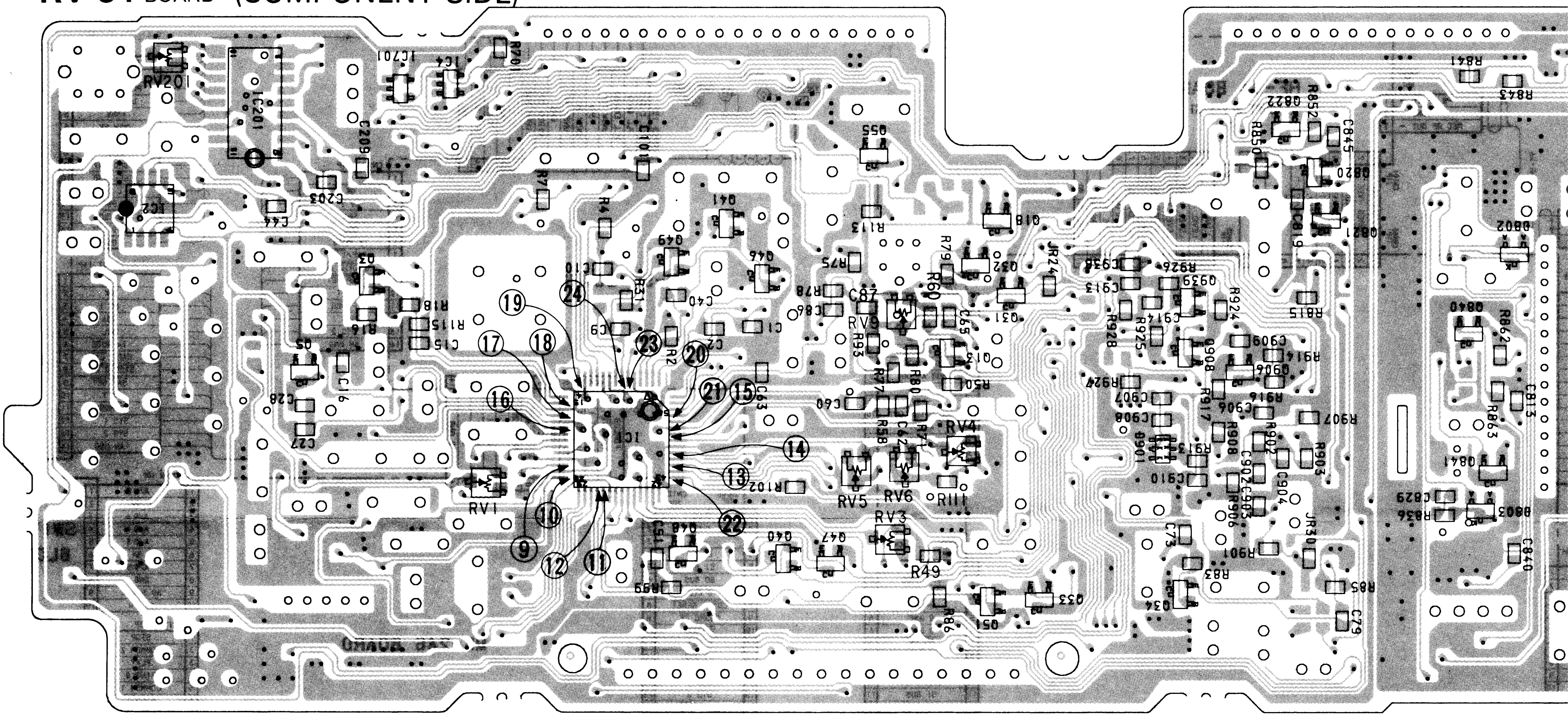
– Ref. No.: RV-34 and S



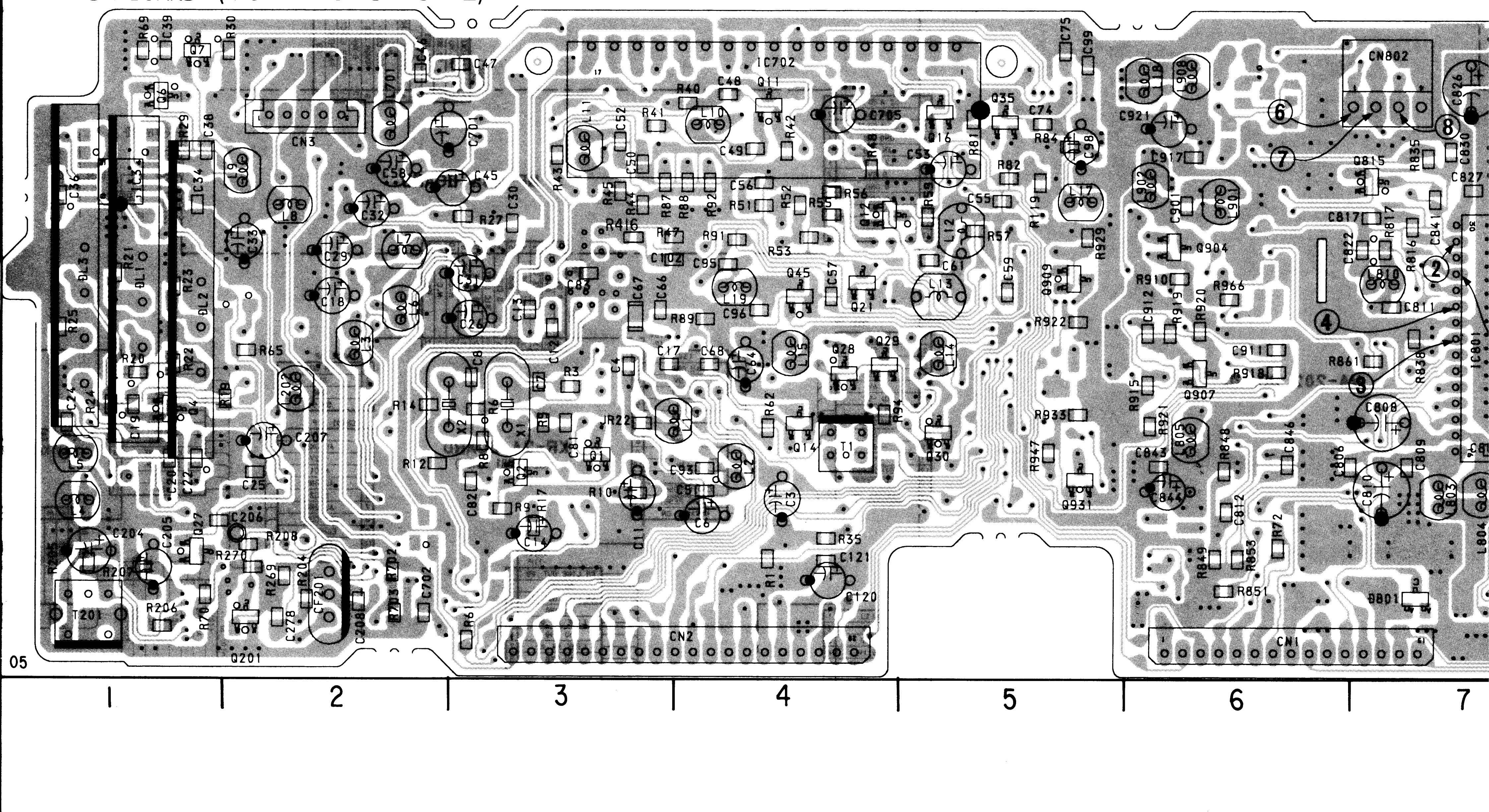
D AMP, VIDEO), SK-44 (CCD) PRINTED WIRING BOARDS

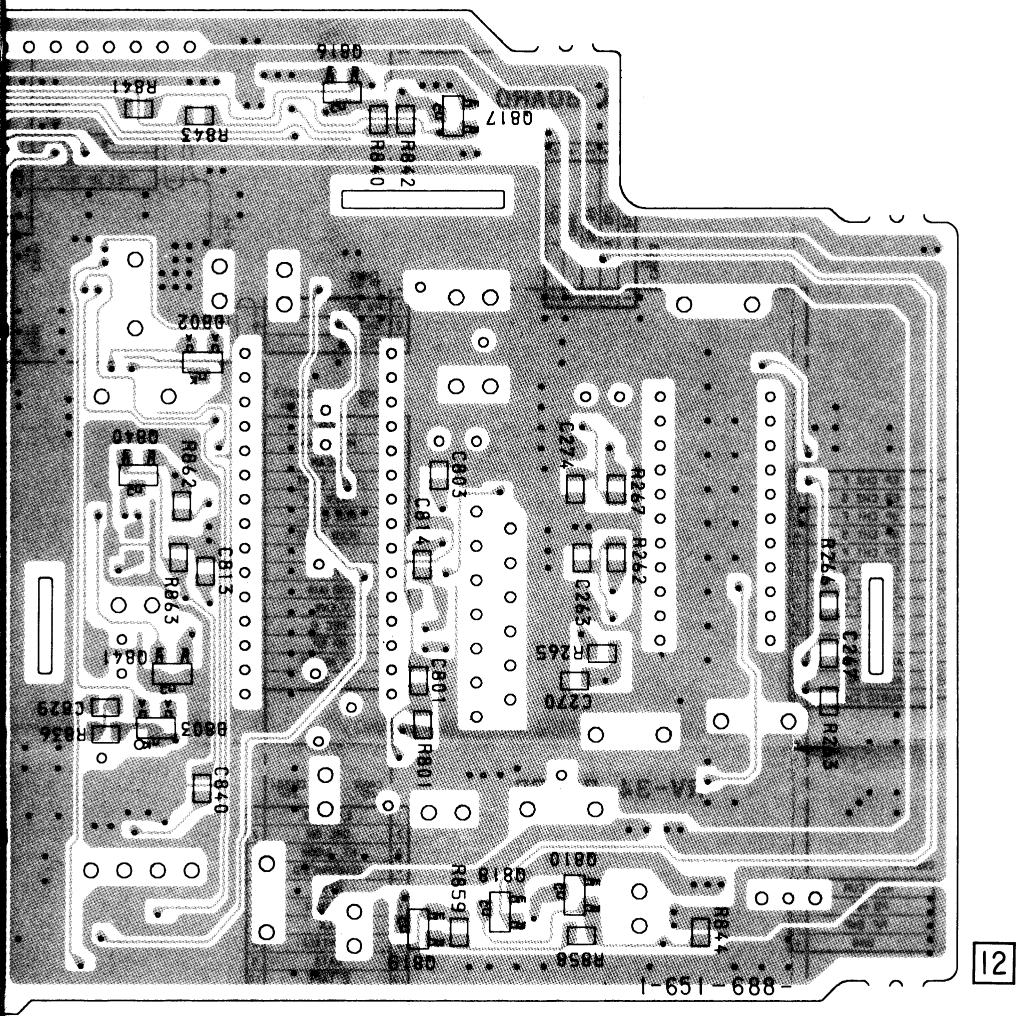
V-34 and SK-44 Boards; 1,000 series –

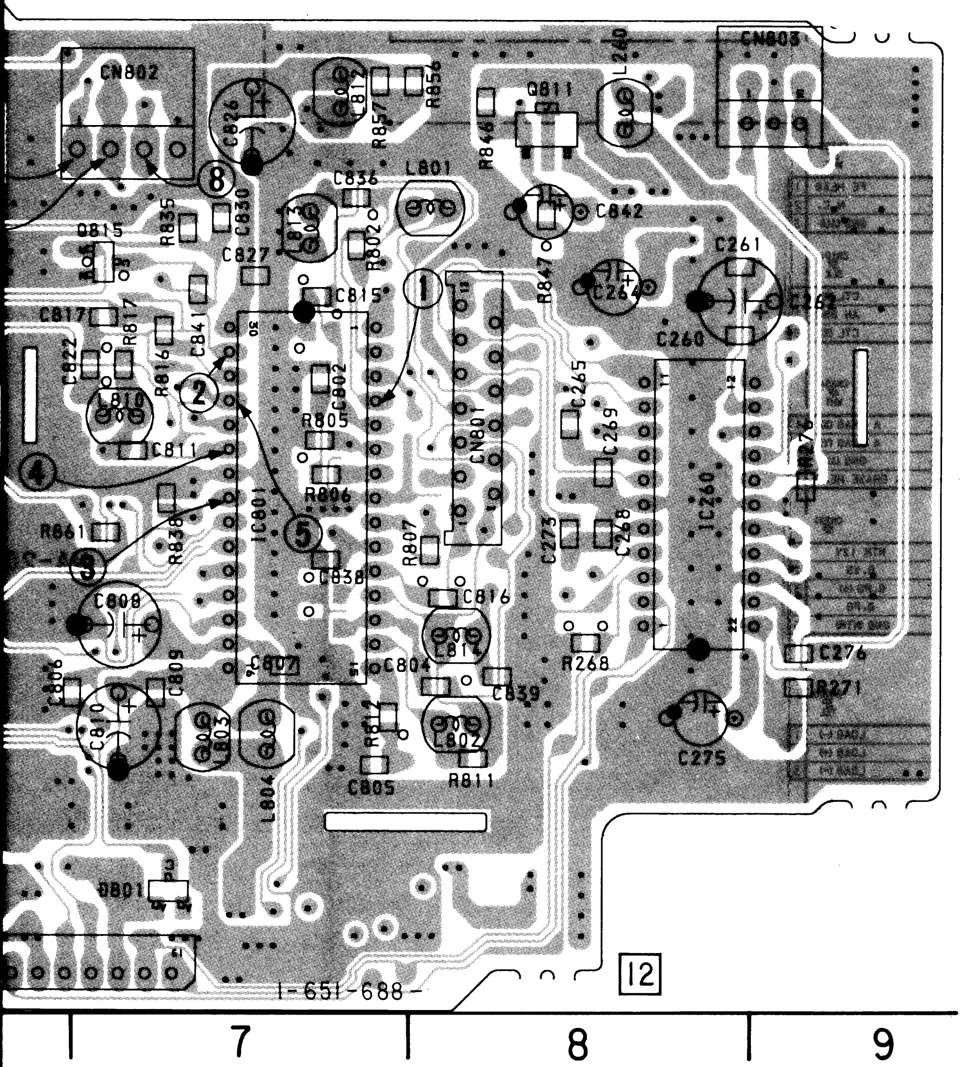
RV-34 BOARD (COMPONENT SIDE)


RV201
IC201
IC701
IC1
RV1
RV3
RV4
RV5
RV6
RV9
①⑤
①⑥
①⑦
①⑧
①⑨
⑳
㉑
㉒
㉓
㉔
⑨
⑩
⑪
⑫
⑬
⑭

RV-34 BOARD (CONDUCTOR SIDE)

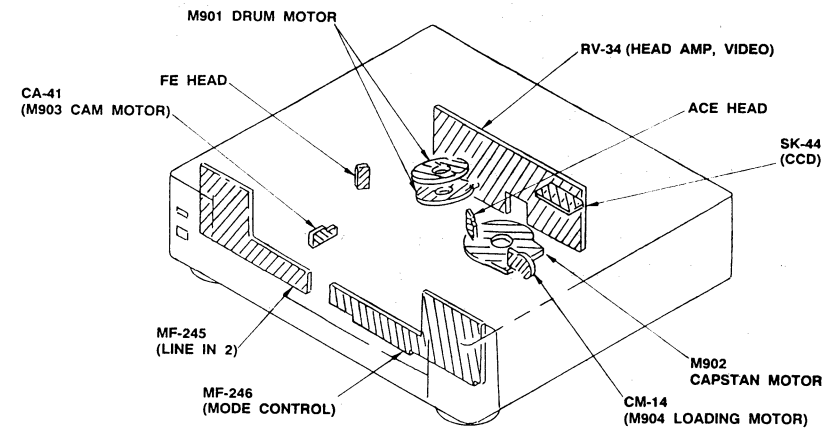

IC702
CN1
CN2
CN3
CN802
IC801
T1
T201
Q201
05
①
②
④
⑤
⑥
⑦
⑧
1
2
3
4
5
6
7


Q816
Q817
R841
R843
R840
R842
Q802
Q840
R862
C813
R863
Q841
C829
R836
Q803
C840
C803
C814
C801
R801
C274
R267
R262
C263
R265
C270
R264
C267
R263
Q819
Q818
R859
Q810
R858
R844
1-651-688-
12

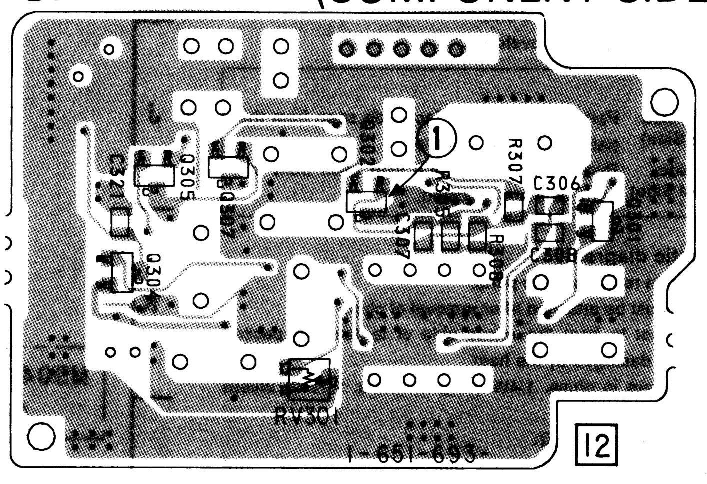

CN802
CN803
C826
C812
R857
R856
Q811
R849
L270
C830
C836
L801
C842
Q815
R835
C827
L813
R802
C261
R847
C264
C262
C817
R817
C841
C815
C822
R816
C802
C265
C260
Q810
R805
C269
IC801
C811
R806
IC260
R861
R838
R807
C273
R273
C808
C838
C816
C807
L814
R268
C276
C806
C809
C804
C839
R271
C810
L803
R814
L802
C275
L804
C805
R811
D801
1-651-688-
12
①
②
④
③
⑤
⑧
7
8
9

RV-34 BOARD

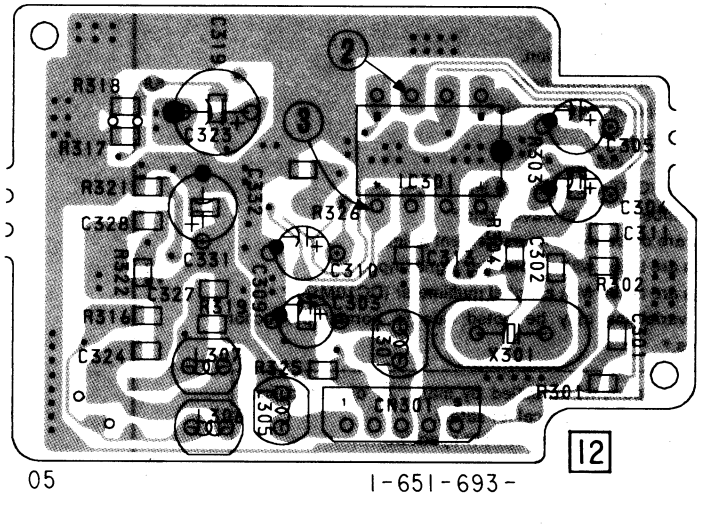
CN001	F-6
CN002	F-4
CN003	D-2
CN801	E-8
CN802	D-7
CN803	D-9
D801	F-7
D802	B-7
D803	C-7
D901	B-5
IC001	B-3
IC002	A-1
IC003	E-1
IC004	A-2
IC201	A-2
IC260	E-8
IC701	A-2
IC702	D-4
IC801	E-7
Q001	F-3
Q002	F-3
Q003	B-2
Q004	F-1
Q005	B-2
Q006	D-1
Q007	D-1
Q011	D-4
Q012	E-4
Q013	B-5
Q014	F-4
Q016	D-5
Q018	A-5
Q021	E-4
Q027	F-1
Q028	E-4
Q029	E-4
Q030	F-5
Q031	B-5
Q032	B-5
Q033	C-5
Q034	C-5
Q035	D-5
Q040	C-4
Q041	A-4
Q045	E-4
Q046	B-4
Q047	C-4
Q048	C-3
Q049	B-3
Q051	C-5
Q055	A-4
Q201	F-2
Q810	C-8
Q811	D-8
Q815	E-7
Q816	A-7
Q817	A-8
Q818	C-8
Q819	C-8
Q820	A-6
Q821	A-6
Q822	A-6
Q840	B-7
Q841	B-7
Q904	E-6
Q906	B-6
Q907	E-6
Q908	B-6
Q909	E-5
Q931	F-5
Q939	B-6


M901 DRUM MOTOR
RV-34 (HEAD AMP, VIDEO)
FE HEAD
CA-41
(M903 CAM MOTOR)
ACE HEAD
SK-44
(CCD)
MF-245
(LINE IN 2)
MF-246
(MODE CONTROL)
M902
CAPSTAN MOTOR
CM-14
(M904 LOADING MOTOR)

SK-44 BOARD (COMPONENT SIDE)


①
C321
Q305
Q307
Q302
R307
C306
Q301
C307
R306
C308
Q304
RV301
1-651-693-
12

SK-44 BOARD (CONDUCTOR SIDE)


C319
②
R318
C323
③
R317
R321
C332
R326
L301
C303
C305
C304
C314
C328
C331
C310
C315
C302
C322
C327
R302
R314
R313
C309
C305
X301
C324
L302
R325
C301
C320
CN301
R301
L303
C305
12
05
1-651-693-

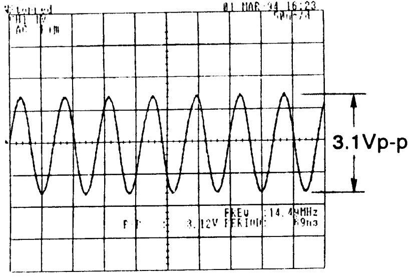
RV-34 (HEAD AMP, VIDEO), SK-44 (CCD) SCHEMATIC DIAGRAM

– Ref. No.: RV-34 and SK-44 Boards; 1,000 series –

- See pages 4-4 to 4-7 for waveforms.

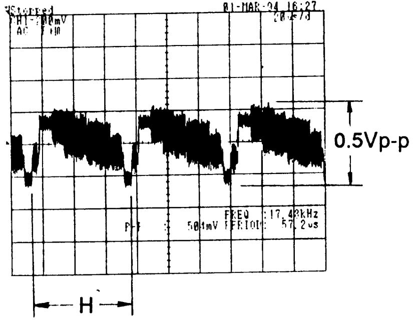
SK-44 BOARD

❶ Q302 Ⓑ REC/PB

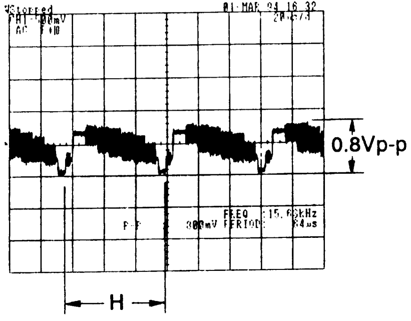


14.318MHz

❷ IC301 ⑥ REC/PB



❸ IC301 ④ REC/PB

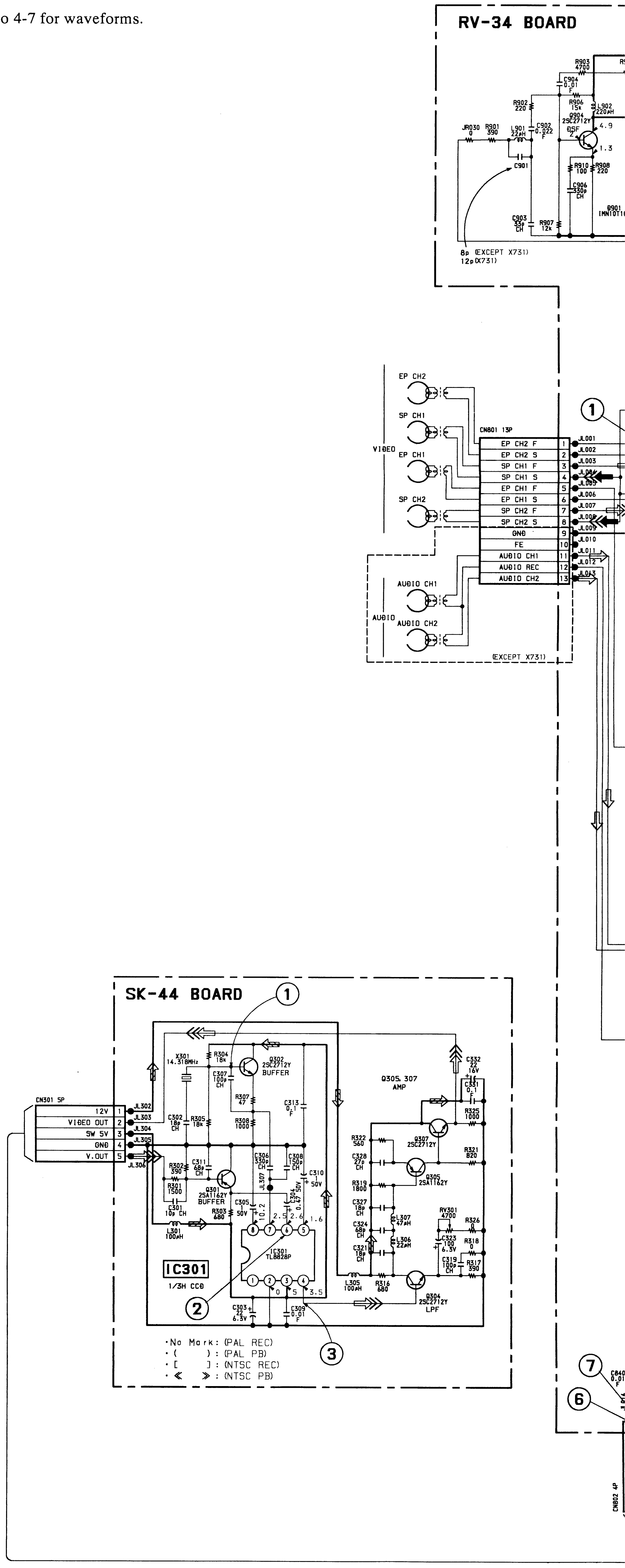


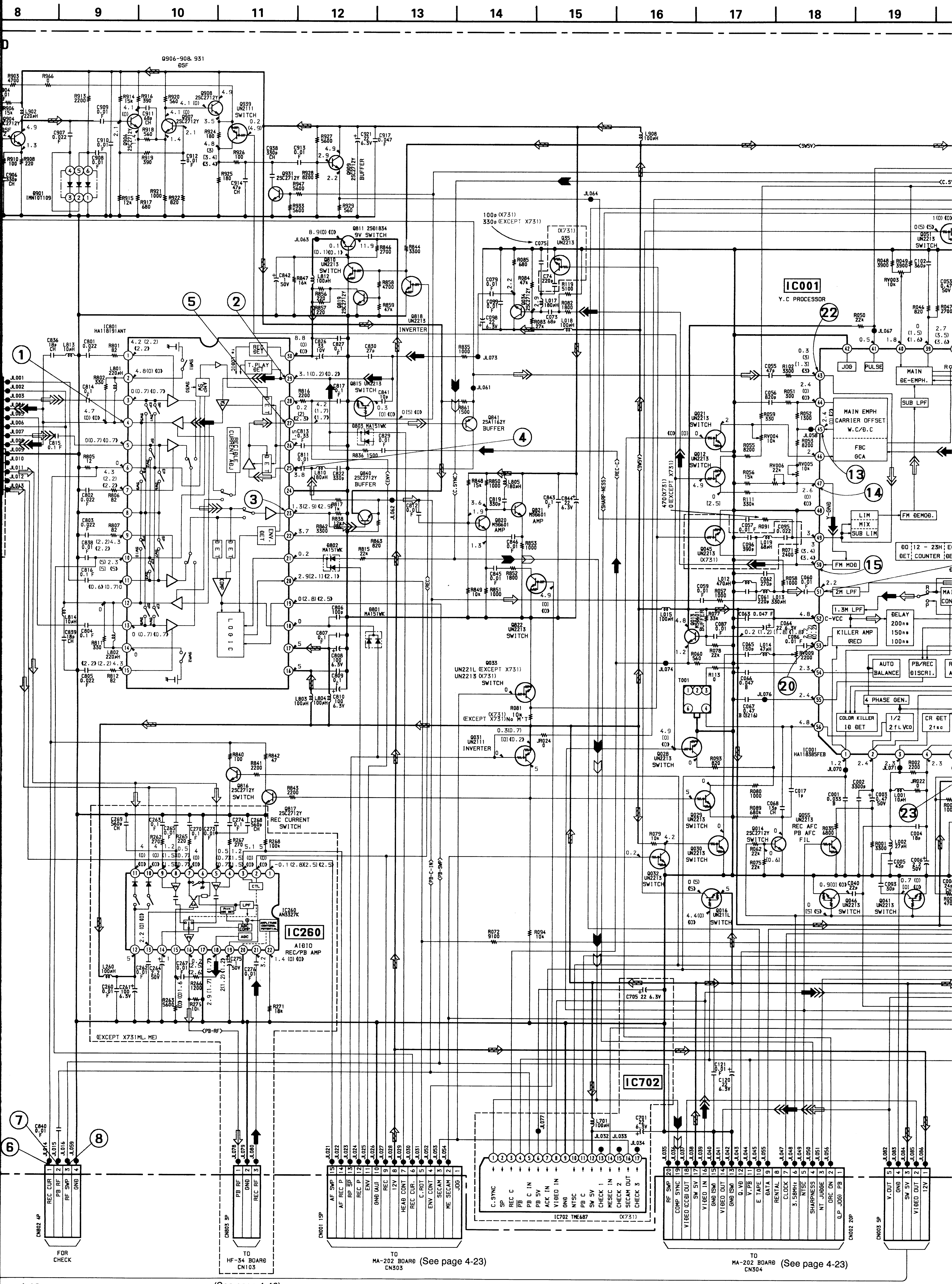
- ＊ : Impossible to measure the voltage at the marked points.

- Signal path

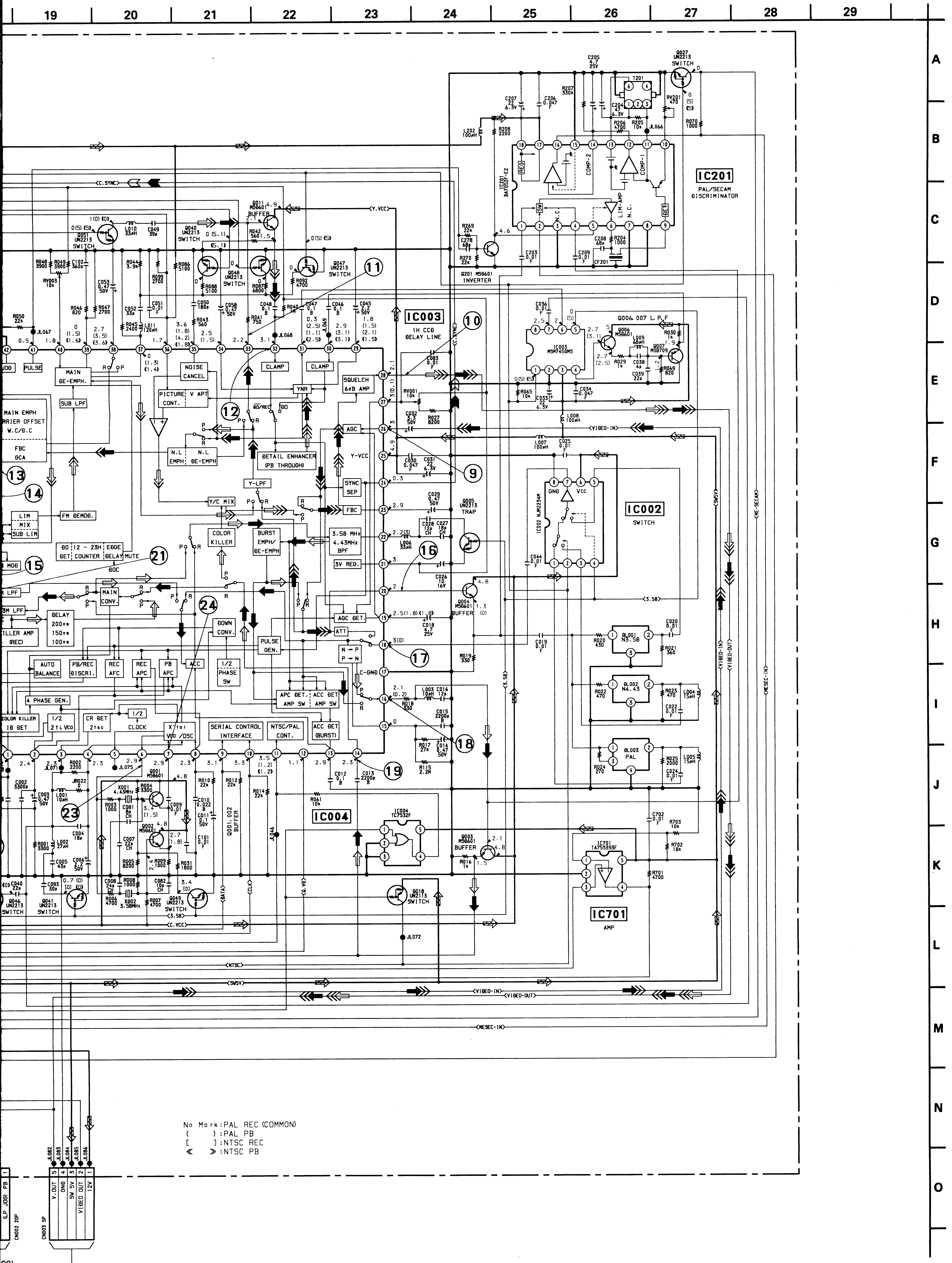
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo		⊐	
Capstan phase servo	➤➤	⊐⊐	⊐⊐
Capstan servo (speed and phase)		⊐⊐⊐	
Ref. signal	➤	⊐	⊐


RV-34 BOARD
R903 4700
C904 0.01
R902 220
R906 15k
L902 220μH
Q904 2SC2712Y
JR030 0
R901 390
L901 22μH
C902 0.022
C901
R910 100
R908 220
C906 330p
C903
R907 12k
8p (EXCEPT X731)
12p(X731)
EP CH2
SP CH1
VIDEO
EP CH1
SP CH2
CN801 13P
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
GND
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
AUDIO
AUDIO CH1
AUDIO CH2
(EXCEPT X731)
SK-44 BOARD
X301 14.318MHz
R304 18k
Q302 2SC2712Y BUFFER
C307 100p
R307 47
C313 0.1
R308 1000
CN301 5P
12V
VIDEO OUT
SW 5V
GND
V.OUT
C302 18p
R305 18k
R302 390
C311 68p
R301 1500
Q301 2SA1162Y BUFFER
C301 10p
L301 100μH
R303 680
C306 330p
C308 150p
C310 50V
C304 0.47 50V
C305 1 50V
IC301 TL8828P
IC301
1/3H CCD
C303 22 6.3V
C309 0.01
Q305, 307 AMP
C332 22 16V
C331 0.1
R325 1000
R322 560
C328 27p
Q307 2SC2712Y
R321 820
R319 1800
Q305 2SA1162Y
C327 18p
C324 68p
L307 47μH
L306 22μH
RV301 4700
R326
C321 18p
C323 100 6.3V
R318 0
C319 100p
R317 390
L305 100μH
R316 680
Q304 2SC2712Y LPF
•No Mark: (PAL REC)
•( ): (PAL PB)
•[ ]: (NTSC REC)
•≪ ≫: (NTSC PB)
CN802 4P


8
9
10
11
12
13
14
15
16
17
18
19
Q906-908, 931
BSF
Q908 2SC2712Y
Q939 UN2111 SWITCH
Q906 2SC2712Y
Q907 2SC2712Y
D901 1MN10T109
Q909 2SC2712Y BUFFER
Q931 2SC2712Y
L908 100μH
JL064
100p (X731)
330p (EXCEPT X731)
C075
Q35 UN2213
Q034 2SC2712Y
Q811 2SD1834 9V SWITCH
Q810 UN2213 SWITCH
Q819 2SC2712Y
Q818 UN2213 INVERTER
JL063
IC801 HA118191ANT
REF DET
T.PLAY DET
REC/PB AMP SW
CURRENT ADJ.
ENV. DET
LOGIC
COMP
Q815 UN2213 SWITCH
D803 MA151WK
Q840 2SC2712Y BUFFER
Q841 2SA1162Y BUFFER
R861 1500
JL073
JL061
JL062
(C.SYNC)
(ENV)
(REC)
(PB-C-IN)
(PB-SWP)
(SHARP-NESS)
(REC-C)
(SW5V)
Q820 M56601 AMP
Q821 M56601 AMP
Q822 UN2213 SWITCH
D802 MA151WK
D801 MA151WK
Q033 UN221L (EXCEPT X731) UN2213 (X731) SWITCH
R081 (X731) 10k (EXCEPT X731) No M'T
Q031 UN2111 INVERTER
JR024
Q816 2SC2712Y SWITCH
Q817 2SC2712Y REC CURRENT SWITCH
IC260 AN3327K
AIBIO REC/PB AMP
CTL
LPF
AGC
(EXCEPT X731ML, ME)
(PB-RF)
IC001
Y.C PROCESSOR
JOG
PULSE
MAIN DE-EMPH.
SUB LPF
MAIN EMPH CARRIER OFFSET W.C/D.C
FBC GCA
LIM MIX SUB LIM
FM DEMOD.
FM MOD
2M LPF
1.3M LPF
C-VCC
DELAY 200ns 150ns 100ns
KILLER AMP (REC)
AUTO BALANCE
PB/REC DISCRI.
4 PHASE GEN.
COLOR KILLER ID DET
1/2 2fLVCO
CR DET 2fsc
IC001 HA11838SFEB
JL067
JL070
JL071
JL074
JL076
JL058
JL077
Q051 UN2213 SWITCH
Q021 UN2213 SWITCH
Q012 UN2213 SWITCH
Q045 UN2213 (X731)
Q013 2SC2712Y BUFFER
Q028 UN2213 SWITCH
Q029 UN2213 SWITCH
Q014 2SC2712Y SWITCH
Q055 UN2213 REC AFC PB AFC FIL
Q030 UN2213 SWITCH
Q032 UN2213 SWITCH
Q016 UN211L SWITCH
Q046 UN2213 SWITCH
Q041 UN2213 SWITCH
T001
12 - 23H DET COUNTER
IC702
C705 22 6.3V
L701 100μH
IC702 TME687 (X731)
C.SYNC
SP
REC C
PB
PB C IN
PB 5V
ACK IN
VIDEO IN
GND
NTSC
PB C
SW 5V
CHECK 1
MESEC IN
CHECK 2
SECAM OUT
CHECK 3
CN802 4P
REC CUR
PB RF
RF SWP
GND
FOR CHECK
CN803 3P
PB RF
GND
REC RF
TO HF-34 BOARD CN103
CN001 15P
AF SWP
AF REC P
RP SP
REC P
ENV
GND (AU)
REC
12V
HEAD CONT
REC CUR.
C.ROT
ENV CONT
SECAM
ME SECAM
JOG
TO MA-202 BOARD (See page 4-23) CN303
CN002 20P
RF SWP
COMP SYNC
VIDEO (CCD) OUT
SW 5V
VIDEO IN
GND (SW)
VIDEO OUT
GND (SW)
Q.VD
V.PB
E TAPE
DATA
RENTAL
CLOCK
3.58MHz
NTSC
SHARPNESS
NT JUDGE
ORC ON
(LP JOG) PB
TO MA-202 BOARD (See page 4-23) CN304
CN003 5P
V.OUT
GND
SW 5V
VIDEO OUT
12V

(See page 4-46)


19
20
21
22
23
24
25
26
27
28
29
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
IC201
PAL/SECAM DISCRIMINATOR
BA7052F-E2
COMP-2
COMP-1
LIM-AMP
Q027 UN2213 SWITCH
T201
Q201 MS0601 INVERTER
IC003
1H CCD DELAY LINE
IC003 MSM7450MS
Q006, 007 L.P.F
IC002
SWITCH
IC002 NJM2234M
IC004
IC004 TC7S32F
IC701
AMP
IC701 TA75S393F
Q005 UN2213 TRAP
Q004 MS0601 BUFFER
Q003 MS0601 BUFFER
Q018 UN2213 SWITCH
Q011 MS0601 BUFFER
Q040 UN2213 SWITCH
Q051 UN2213 SWITCH
Q048 UN2213 SWITCH
Q047 UN2213 SWITCH
Q001 MS0601
Q002 MS0601
Q041 UN2213 SWITCH
Q046 UN2213 SWITCH
Q049 UN2213 SWITCH
Q001, 002 BUFFER
BL001 N3.58
BL002 N4.43
BL003 PAL
MAIN DE-EMPH.
SUB LPF
NOISE CANCEL
PICTURE V APT CONT.
CLAMP
CLAMP
YNR
SQUELCH 6dB AMP
AGC
Y-VCC
SYNC SEP
FBC
3.58 MHz 4.43MHz BPF
3V REG.
DETAIL ENHANCER (PB THROUGH)
N.L EMPH
N.L DE-EMPH
Y-LPF
Y/C MIX
COLOR KILLER
BURST EMPH/ DE-EMPH
MAIN EMPH
CARRIER OFFSET
W.C/D.C
FBC
GCA
LIM
MIX
SUB LIM
FM DEMOD.
DD 12 - 23H DET COUNTER
EDGE DELAY MUTE
DOC
MOD
LPF
3M LPF
MAIN CONV.
DELAY 200ns 150ns 100ns
KILLER AMP (REC)
DOWN CONV.
AGC DET.
ATT
PULSE GEN.
N→P
P→N
C-GND
AUTO BALANCE
PB/REC DISCRI.
REC AFC
REC APC
PB APC
ACC
1/2 PHASE SW
4 PHASE GEN.
COLOR KILLER 1D DET
1/2 2fL VCO
CR DET 2fsc
1/2 CLOCK
X'tal VCO /DSC
SERIAL CONTROL INTERFACE
NTSC/PAL CONT.
ACC DET (BURST)
APC DET. AMP SW
ACC DET AMP SW
JOG
PULSE
<C.SYNC>
<Y.VCC>
<C.VCC>
<VIDEO-IN>
<VIDEO-OUT>
<NTSC>
<SWSV>
<MESEC-IN>
<ME-SECAM>
<3.58>
<DATA>
<CLK>
<D.VD>
CN003 5P
V.OUT
GND
SW 5V
VIDEO OUT
12V
CN002 20P
(LP JOG) PB
JL082
JL083
JL084
JL085
JL086
JL072
11
10
12
9
13
14
15
16
21
24
17
18
19
23

No Mark:PAL REC (COMMON)
( ):PAL PB
[ ]:NTSC REC
≪ ≫:NTSC PB

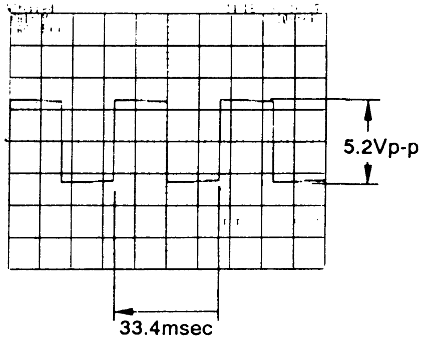
HEAD AMP, VIDEO

MA-202 (SERVO, SYSTEM CONTROL, NORMAL AUDIO), MF-245 (LINE IN 2) PRINTED WIR

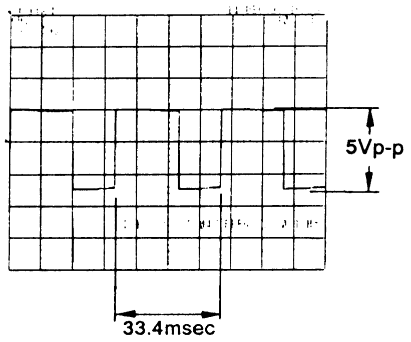
– Ref. No.: MA-202 Board; 2,000 series, MF-245 Board; 5,000 series –

MA-202 BOARD (NTSC 3.58 MODE)

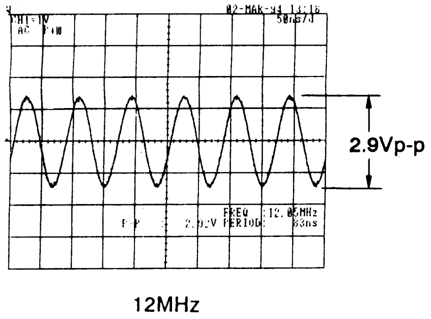
❶IC203① REC/PB



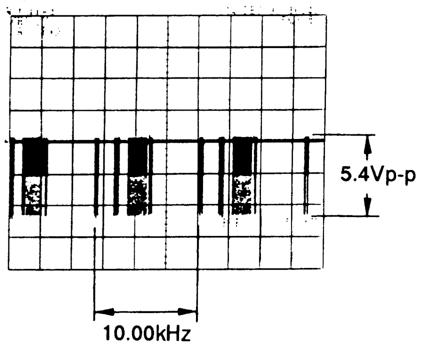
❷IC203⑦ REC



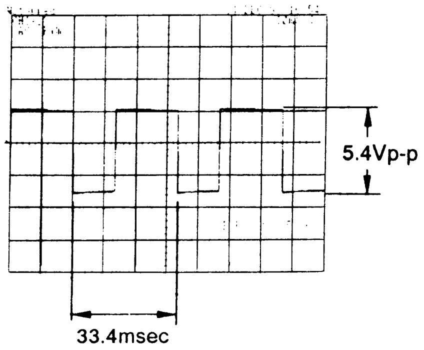
❸IC203㊷ REC/PB



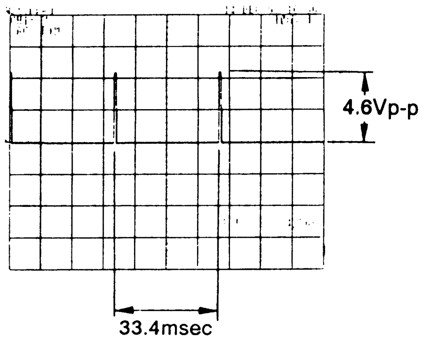
❹IC203㊼ REC/PB



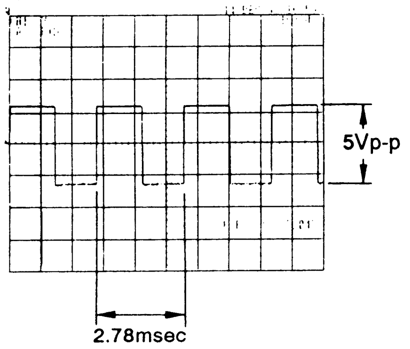
❺IC203(67) PB



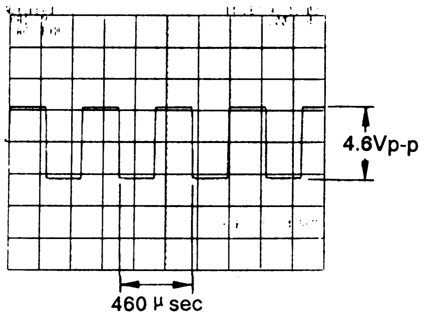
❻IC203(68) REC/PB



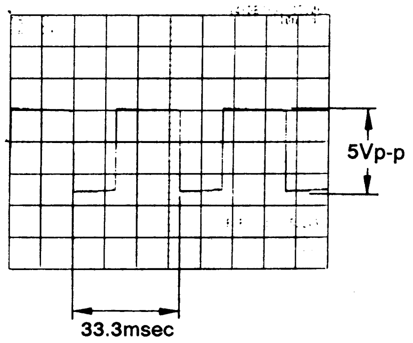
❼IC203(69) REC/PB



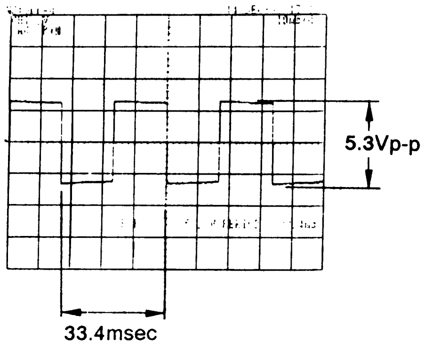
❽IC203(70) REC/PB



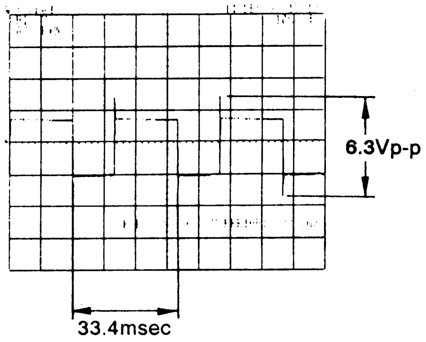
❾IC203(71) REC/PB



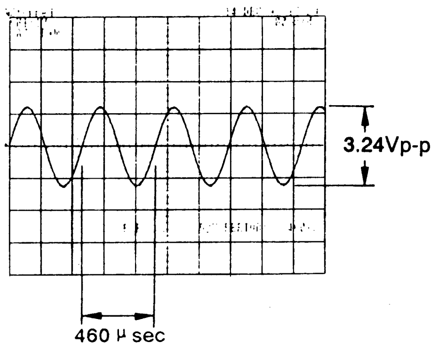
❿IC203(100) REC/PB



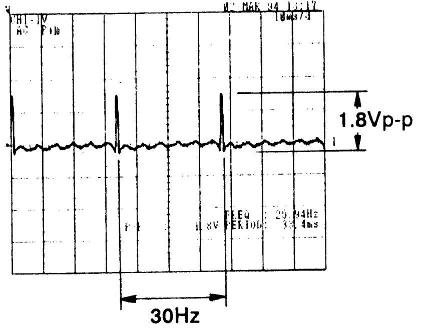
⓫IC101⑦ REC



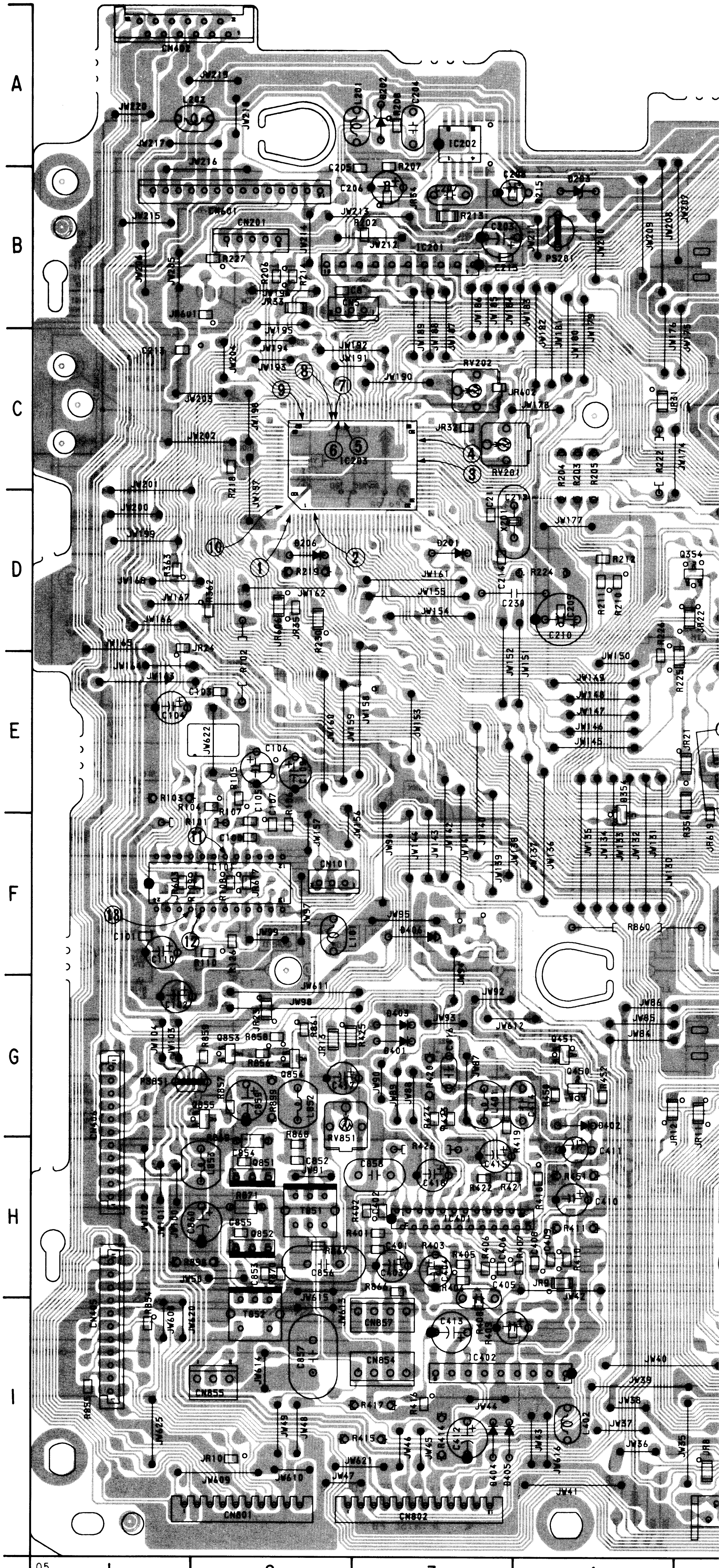
⓬IC101⑳ REC/PB



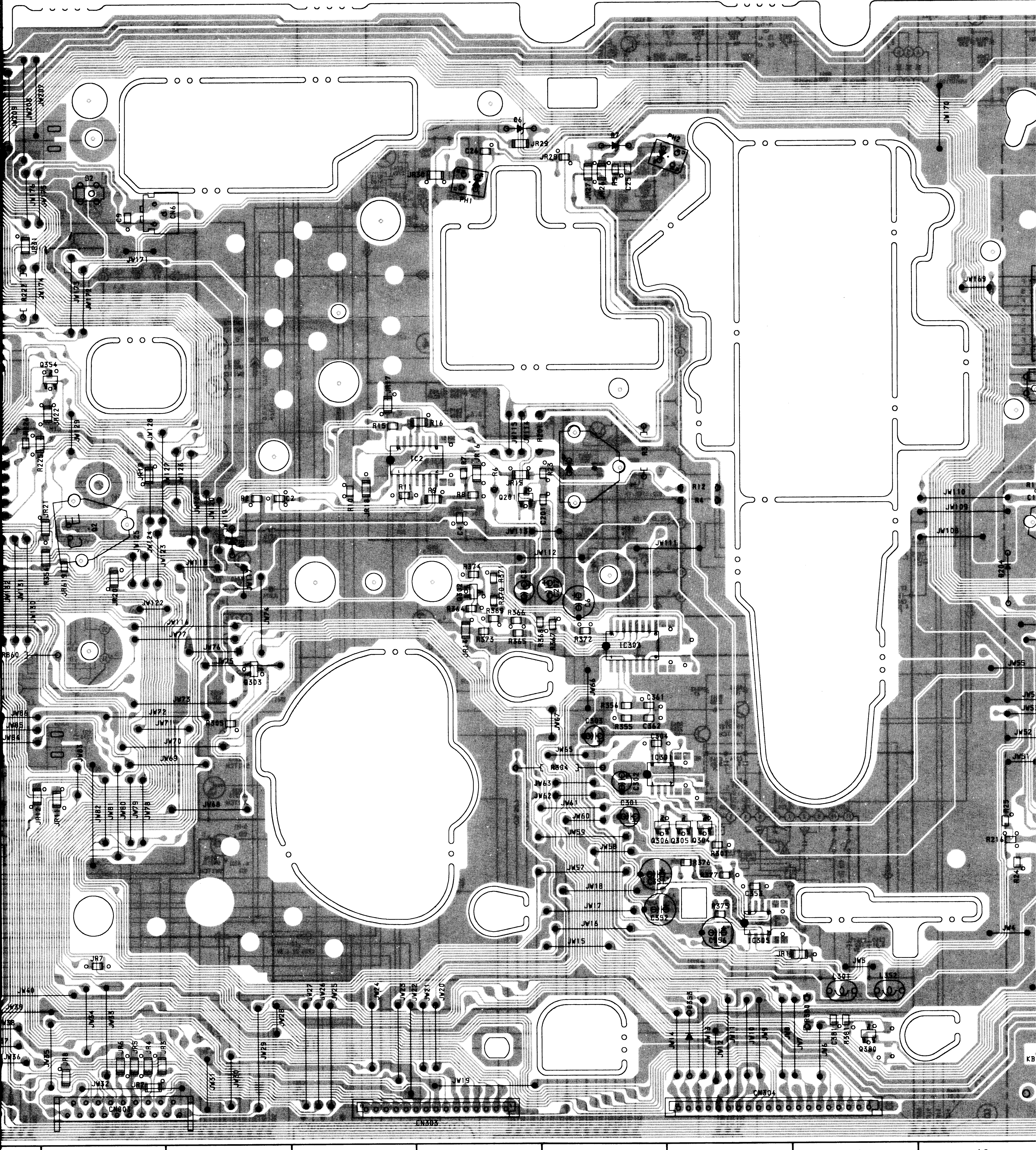
⓭IC101㉑ REC/PB



MA-202 BOARD


A
B
C
D
E
F
G
H
I
05
1
2
3
4
IC202
IC201
IC203
CN201
CN101
IC401
IC402
CN801
CN802
CN854
CN855
CN857
RV201
RV202
RV851

SERVO, SYSTEM CONTROL


IC2
IC303
IC301
IC305
CN6
CN303
CN304
CN305
Q354
Q281
Q303
Q304
Q305
Q306
Q380
PH1
PH2
D6
D7
L301
L352
C24
C361
C362
C352
C351
R15
R16
R11
R12
R372
R373
R374
R375
R376
R355
R356
JR29
JR28
JR7
JW171
JW111
JW112
JW113
JW19
JW15
JW16
JW17
JW18
JW55
JW57
JW58
JW59
JW60
JW61
JW62
JW63
JW65
JW66
JW67
JW68
JW69
JW70
JW71
JW72
JW73
JW74
JW75
JW76
JW77
JW116
JW122
JW108
JW109
JW110
JW169
JW170
JW4
JW5
JW40
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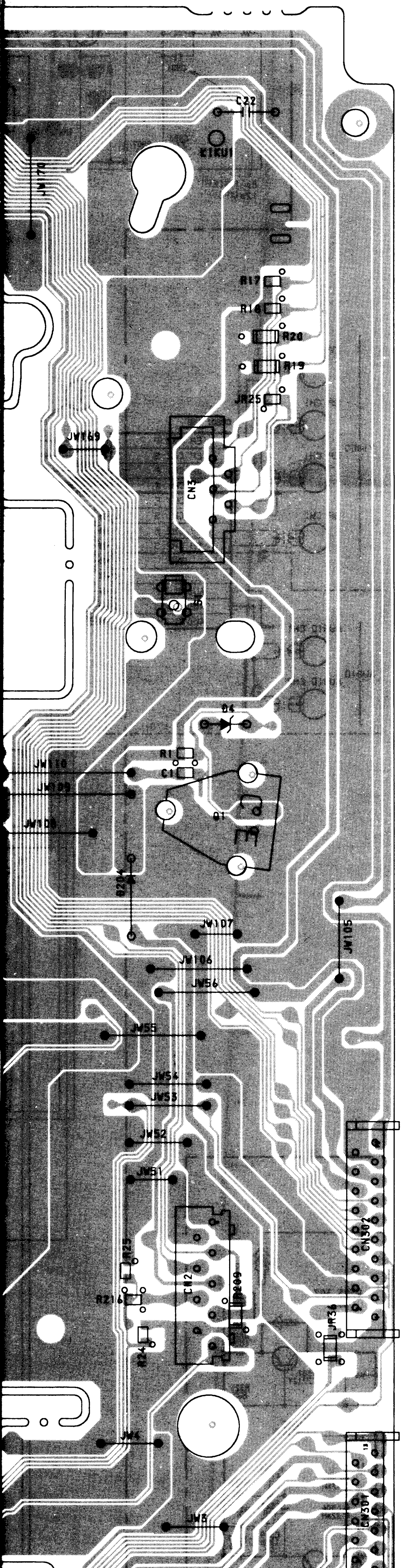
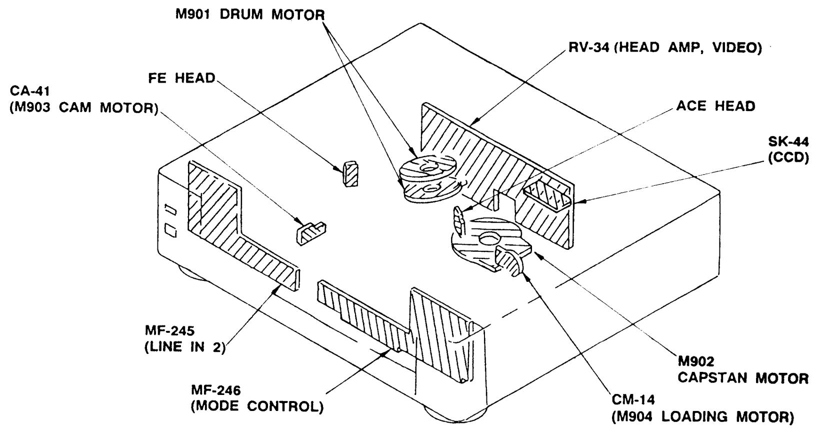
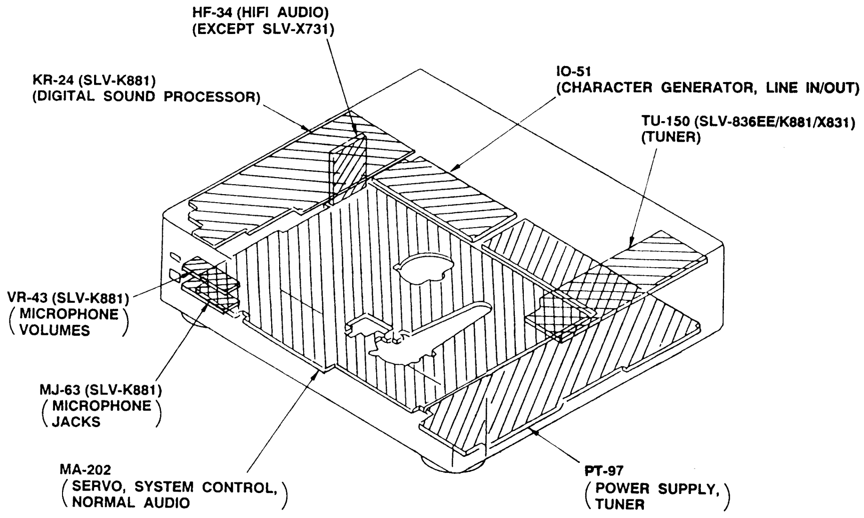

C22
R17
R14
R20
R19
JR25
CN3
JW769
D6
R1
C1
Q1
JW110
JW129
JW108
D204
JW107
JW105
JW106
JW56
JW55
JW54
JW53
JW52
JW51
CN302
R25
R214
R24
CN301
JW4
JW3
KB1
JW2
JW1
1-651-687-
11
12
13

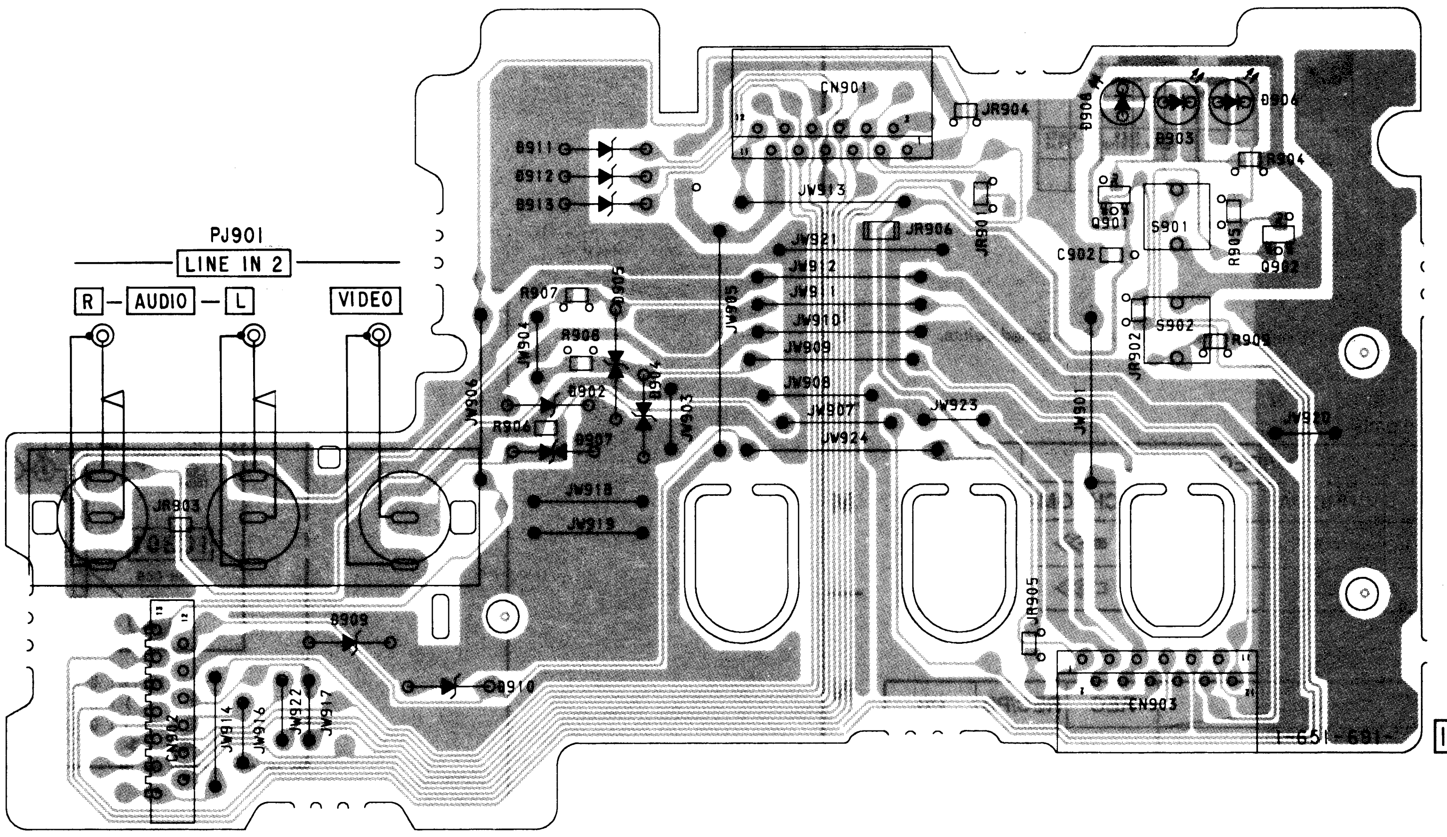
MA-202 BOARD

CN002	H-13
CN003	D-13
CN005	B-2
CN006	C-6
CN101	F-2
CN201	B-2
CN301	I-13
CN302	G-13
CN303	I-8
CN304	I-10
CN402	A-1
CN405	I-1
CN406	G-1
CN601	B-2
CN801	I-2
CN802	I-3
CN803	I-5
CN854	I-3
CN855	I-2
CN857	I-3
D001	E-9
D004	E-13
D005	E-6
D006	B-8
D007	B-9
D201	D-3
D202	A-3
D203	B-4
D204	F-12
D206	D-2
D353	I-10
D354	F-4
D401	G-3
D402	G-4
D403	G-3
D404	I-3
D405	I-3
D406	F-3
IC002	E-8
IC101	F-2
IC201	B-3
IC202	A-3
IC203	C-3
IC301	G-9
IC303	F-9
IC305	H-10
IC401	H-3
IC402	I-3
PH001	B-8
PH002	B-10
Q001	E-13
Q002	E-5
Q201	E-8
Q302	F-8
Q303	F-6
Q304	H-10
Q305	H-10
Q306	H-9
Q354	D-5
Q380	I-11
Q450	G-4
Q451	G-4
Q851	H-2
Q852	H-2
Q853	G-2
Q854	G-2
Q855	G-2


M901 DRUM MOTOR
RV-34 (HEAD AMP, VIDEO)
FE HEAD
CA-41
(M903 CAM MOTOR)
ACE HEAD
SK-44
(CCD)
MF-245
(LINE IN 2)
MF-246
(MODE CONTROL)
M902
CAPSTAN MOTOR
CM-14
(M904 LOADING MOTOR)

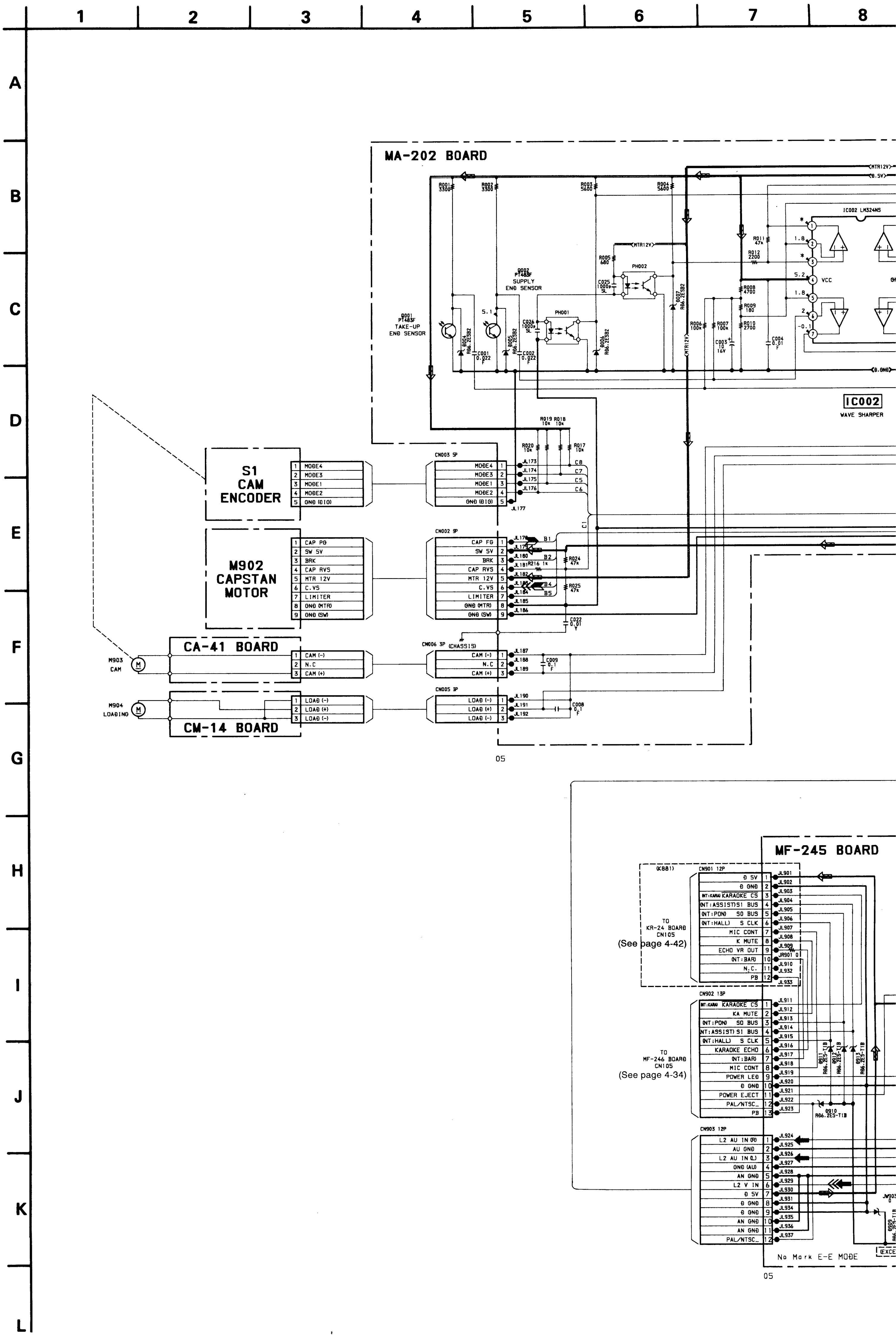

HF-34 (HIFI AUDIO)
(EXCEPT SLV-X731)
KR-24 (SLV-K881)
(DIGITAL SOUND PROCESSOR)
IO-51
(CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831)
(TUNER)
VR-43 (SLV-K881)
(MICROPHONE VOLUMES)
MJ-63 (SLV-K881)
(MICROPHONE JACKS)
MA-202
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97
(POWER SUPPLY, TUNER)

MF-245 BOARD


CN901
JR904
D906
D908
D903
R904
Q901
S901
R901
Q902
C902
S902
R905
JR902
D911
D912
D913
JW913
JR906
JR901
JW921
JW912
JW911
JW910
JW909
JW908
JW907
JW923
JW924
JW901
JW920
PJ901
LINE IN 2
R
AUDIO
L
VIDEO
R907
R908
D909
D902
D904
JW904
JW906
JW905
JW903
R906
D907
JW918
JW919
JR903
D905
D910
JR905
CN903
CN902
JW914
JW916
JW922
JW917
1-651-691-
12
05

MA-202 (SERVO, SYSTEM CONTROL, NORMAL AUDIO), MF-245 (LINE IN 2) SCHEMATIC DIAGRAM

– Ref. No.: MA-202 Board; 2,000 series, MF-245 Board; 5,000 series –



1
2
3
4
5
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7
8
A
B
C
D
E
F
G
H
I
J
K
L
MA-202 BOARD
IC002 LM324NS
IC002
WAVE SHARPER
Q001 PT483F TAKE-UP END SENSOR
Q002 PT483F SUPPLY END SENSOR
PH001
PH002
S1 CAM ENCODER
MODE4
MODE3
MODE1
MODE2
GND (DIO)
CN003 5P
M902 CAPSTAN MOTOR
CAP FG
SW 5V
BRK
CAP RVS
MTR 12V
C.VS
LIMITER
GND (MTR)
GND (SW)
CN002 9P
CA-41 BOARD
M903 CAM
CAM (-)
N.C
CAM (+)
CN006 3P (CHASSIS)
M904 LOADING
LOAD (-)
LOAD (+)
CM-14 BOARD
CN005 3P
05
MF-245 BOARD
CN901 12P
TO KR-24 BOARD CN105 (See page 4-42)
CN902 13P
TO MF-246 BOARD CN105 (See page 4-34)
CN903 12P
KARAOKE CS
ASSIST SI BUS
SO BUS
S CLK
MIC CONT
K MUTE
ECHO VR OUT
KA MUTE
KARAOKE ECHO
POWER LED
POWER EJECT
PAL/NTSC
PB
L2 AU IN (R)
AU GND
L2 AU IN (L)
GND (AU)
AN GND
L2 V IN
B 5V
B GND
No Mark E-E MODE

- * : Impossible to measure the voltage at the marked points.

- Signal path

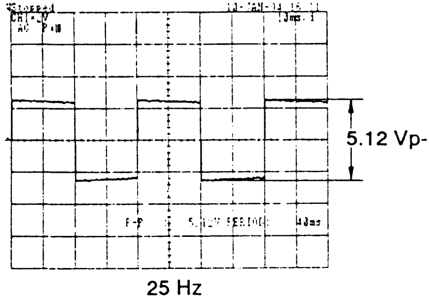
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

- Signal path

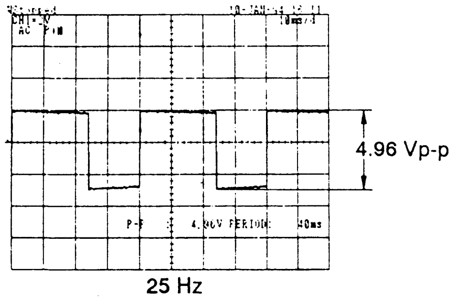
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷»	
Drum servo (speed and phase)		▷»»	
Capstan speed servo		➢	
Capstan phase servo	➤»	➢»	⊃»
Capstan servo (speed and phase)		➢»»	
Ref. signal	➤		⊃

MA-202 BOARD (PAL MODE)

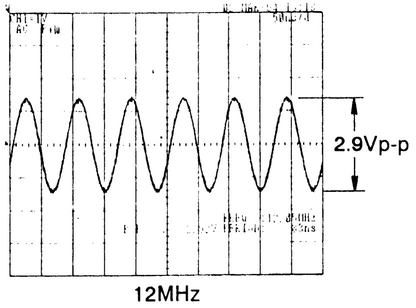
❶IC203 ① REC/PB



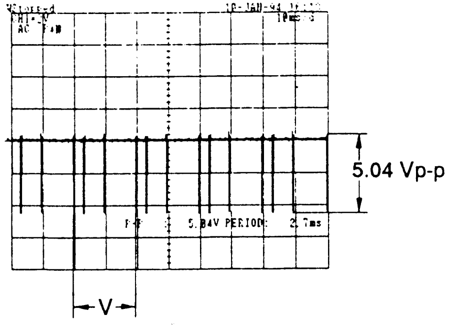
❷IC203 ⑦ REC



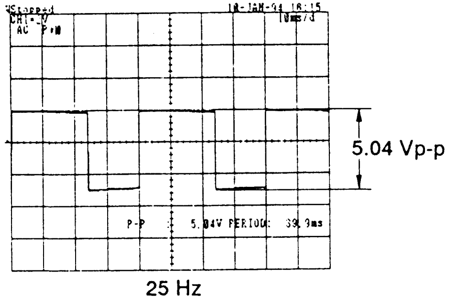
❸IC203 ㊷ REC/PB



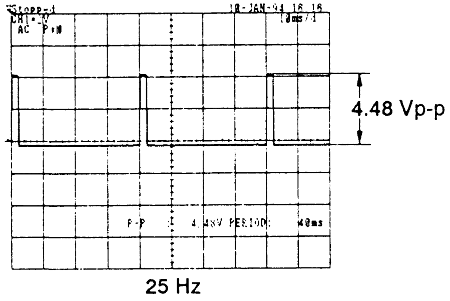
❹IC203 ㊼ REC/PB



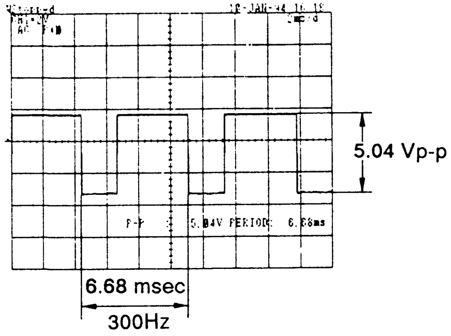
❺IC203 ㊿ PB



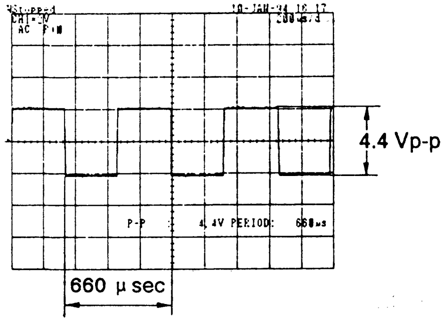
❻IC203 (68) REC/PB



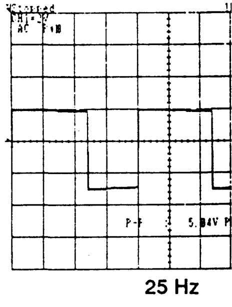
❼IC203 (69) REC/PB



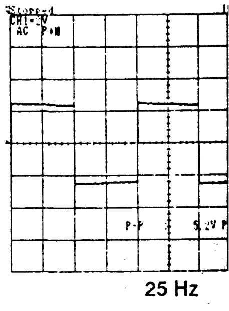
❽IC203 (70) REC/PB

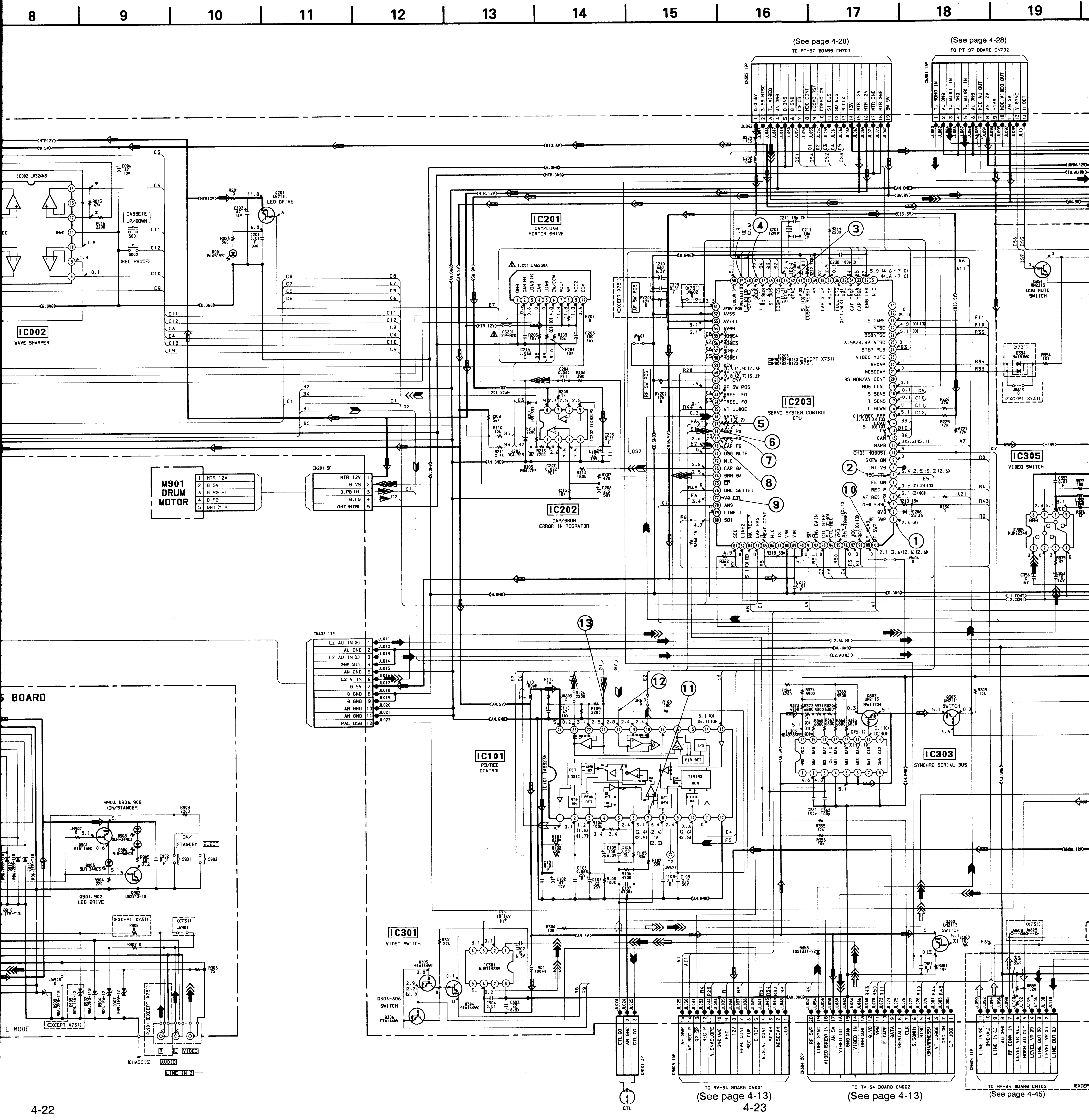


❾IC203 (77) REC/PB



❿IC203 (100) REC/PB




8
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19
(See page 4-28)
TO PT-97 BOARD CN701
(See page 4-28)
TO PT-97 BOARD CN702
CN302 19P
CN301 13P
IC002 LM324NS
IC002
WAVE SHAPER
CASSETE UP/DOWN
S001
S002
REC PROOF
Q201 UN211L
LED DRIVE
D001 GL451(YS)
IC201
CAM/LOAD MOTOR DRIVE
IC201 BA6238A
IC202
CAP/DRUM ERROR INTEGRATOR
IC202 TL082CPS
M901 DRUM MOTOR
MTR 12V
0 5V
D.PG (+)
D.FG
DNT (MTR)
CN201 5P
IC203
SERVO SYSTEM CONTROL CPU
IC203 CXP80432-014Q (EXCEPT X731)
X201 12MHz
Q354 UN2213
OSD MUTE SWITCH
IC305
VIDEO SWITCH
IC305 NJM2234M
CN402 12P
L2 AU IN (R)
AU GND
L2 AU IN (L)
GND (AU)
AN GND
L2 V IN
0 5V
D GND
D GND
AN GND
AN GND
PAL OSD
IC101
PB/REC CONTROL
IC101 LA7882N
IC303
SYNCHRO SERIAL BUS
IC303 M5478(?)
Q302 UN2113 SWITCH
Q303 UN2111 SWITCH
Q380 UN2113 SWITCH
IC301
VIDEO SWITCH
IC301 NJM2233BM
Q304-306 SWITCH
Q305 DTA144WK
Q306 DTA144WK
Q304 DTA144WK
S BOARD
Q903, Q904, 908 (ON/STANDBY)
ON/STANDBY
EJECT
S901
S902
Q901, 902 LED DRIVE
Q902 UN2213-TX
EXCEPT X731
X731
R
L
VIDEO
AUDIO
LINE IN 2
CHASSIS
E MODE
CN101 5P
CTL
TO RV-34 BOARD CN001
(See page 4-13)
CN303 15P
TO RV-34 BOARD CN002
(See page 4-13)
CN304 20P
TO HF-34 BOARD CN102
(See page 4-45)
CN405 11P
TP JW622
①
②
③
④
⑤
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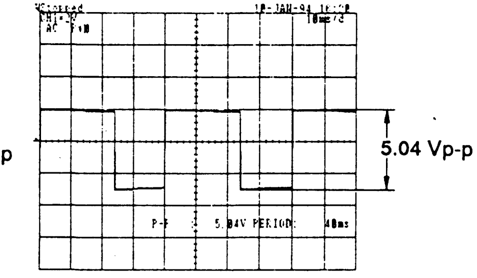
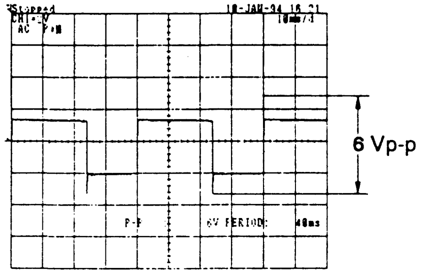
⑩
⑪
⑫
⑬

⑨ IC203 ⑰ REC/PB



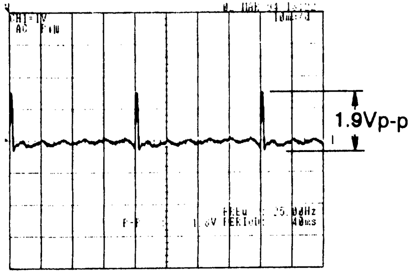
25 Hz

⑪ IC101 ⑦ REC



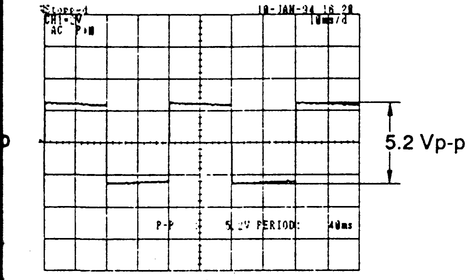
25 Hz

⑬ IC101 ㉑ REC/PB



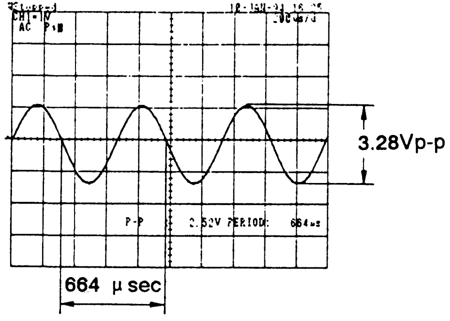
25 Hz

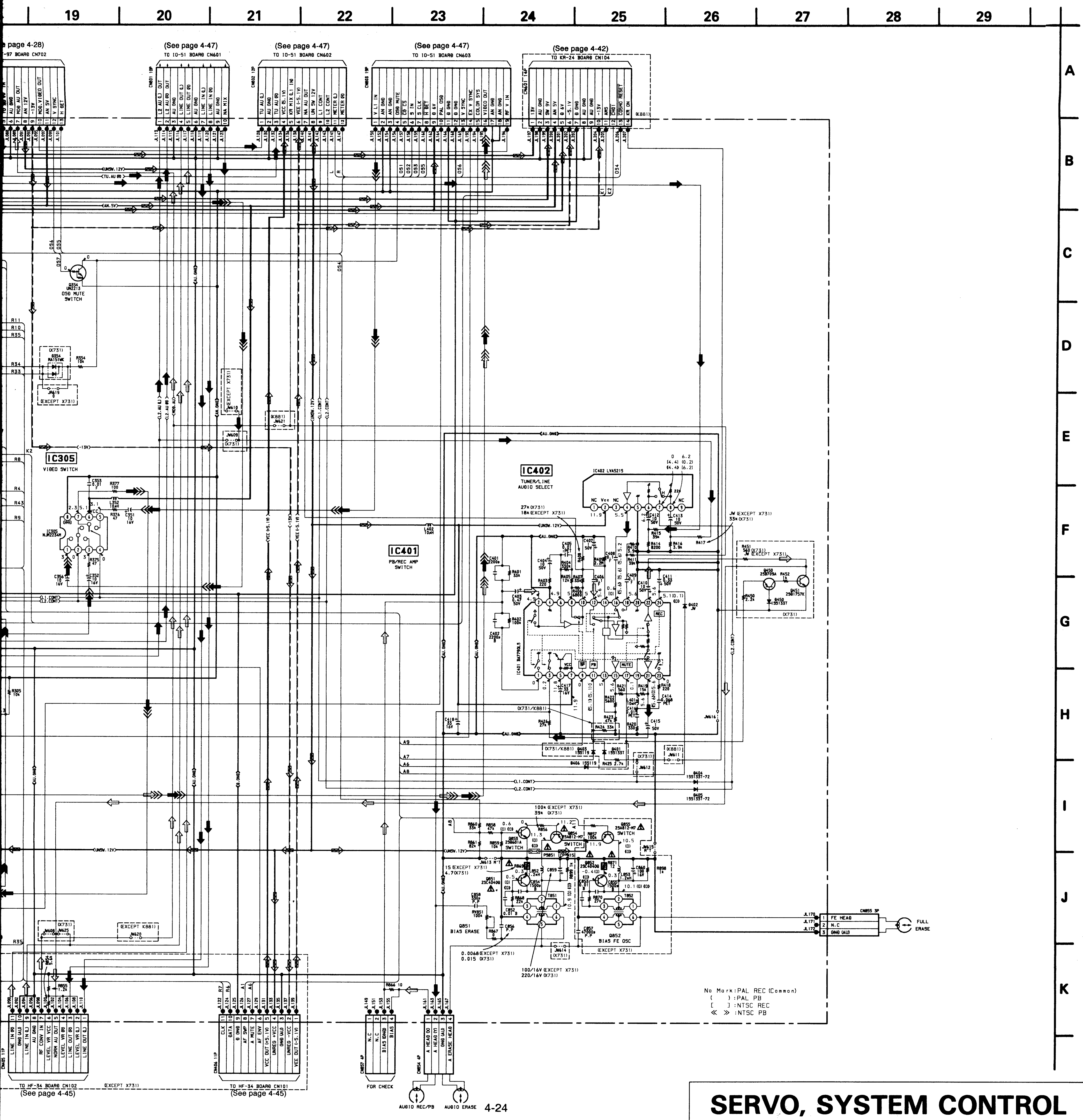
⑩ IC203 ⑳ REC/PB



25 Hz

⑫ IC101 ⑳ REC/PB




19
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22
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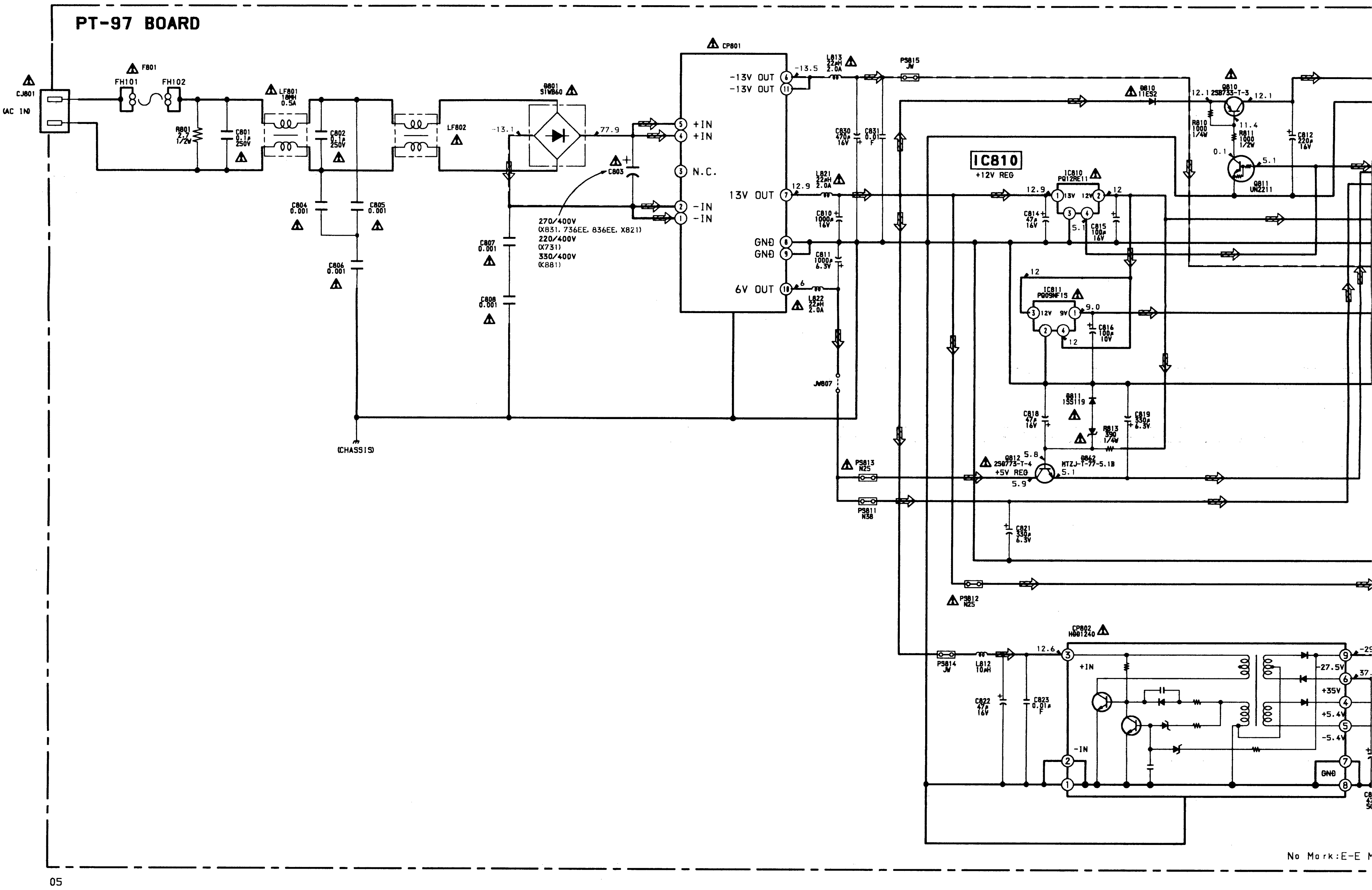
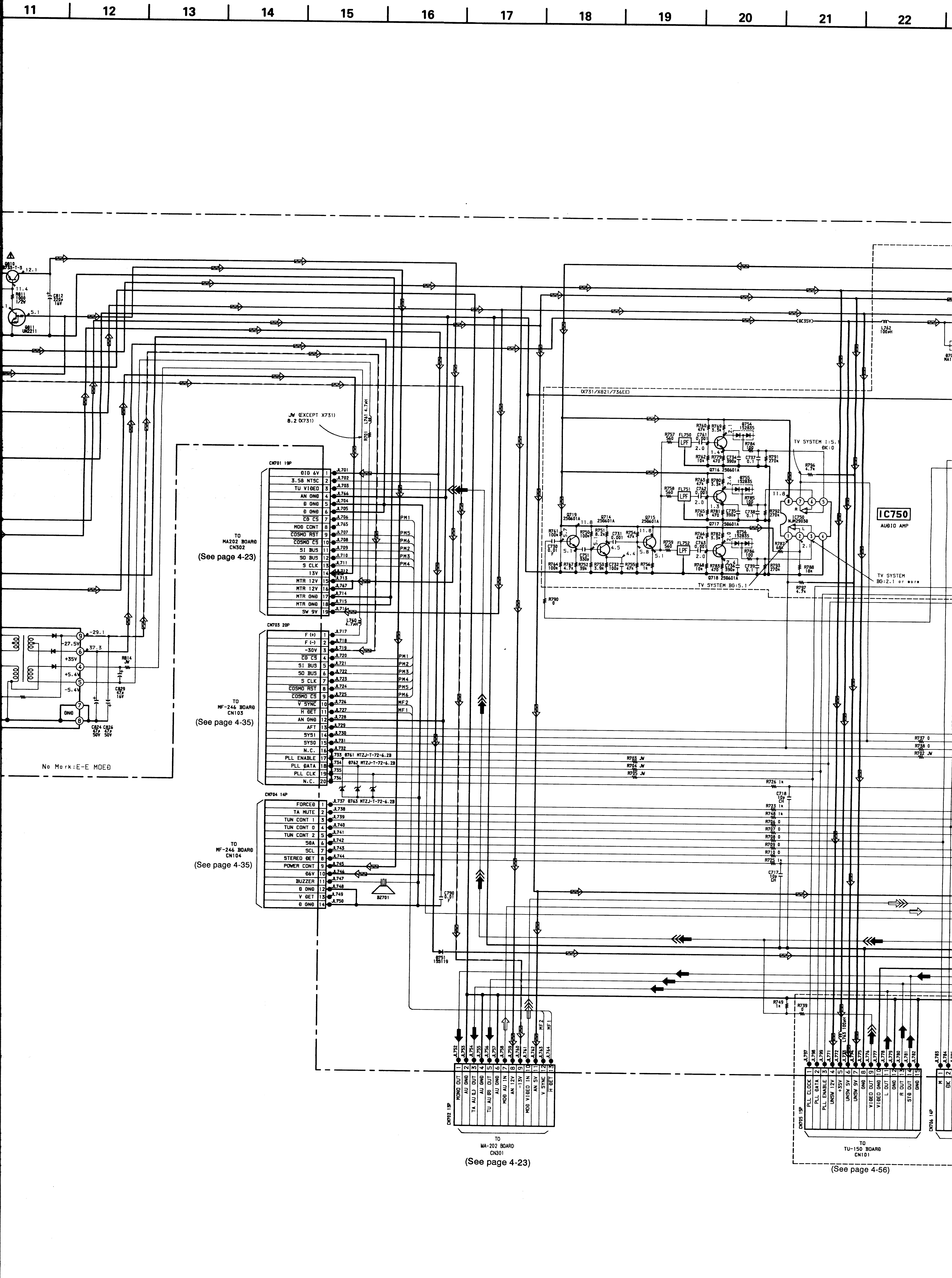
24
25
26
27
28
29
A
B
C
D
E
F
G
H
I
J
K
(See page 4-28)
(See page 4-47)
TO 10-51 BOARD CN601
(See page 4-47)
TO 10-51 BOARD CN602
(See page 4-47)
TO 10-51 BOARD CN603
(See page 4-42)
TO KR-24 BOARD CN104
CN601 11P
CN602 12P
CN603 12P
CN401 14P
Q354 UN2213 OSD MUTE SWITCH
IC305 VIDEO SWITCH
IC305 NJM2234M
IC401 PB/REC AMP SWITCH
IC402 TUNER/LINE AUDIO SELECT
IC402 LVA5215
Q450 2SB709A
Q451 2SD1757K
Q853 2SD601A SWITCH
Q854 2SA812-M7 SWITCH
Q855 2SA812-M7 SWITCH
Q851 2SC4040Q BIAS ERASE
Q852 2SC4040Q BIAS FE OSC
CN855 3P
FE HEAD
N.C
GND (AU)
FULL ERASE
LINE IN (R)
GND (AU)
LINE IN (L)
AU GND
RF CONV IN
LEVEL VR VCC
NORM AU OUT
LEVEL VR (R)
LINE OUT (R)
LEVEL VR (L)
LINE OUT (L)
CN405 11P
TO HF-34 BOARD CN102
(EXCEPT X731)
(See page 4-45)
CLK
DATA
D GND
AF SWP
A MUTE
AF ENV
VCC OUT (+5.1V)
UNREG +VCC
GND (AU)
UNREG -VCC
VEE OUT (-5.1V)
CN406 11P
TO HF-34 BOARD CN101
(See page 4-45)
CN857 4P
N.C
N.C
BIAS GND
BIAS
FOR CHECK
CN854 4P
A HEAD (X)
A HEAD (Y)
GND (AU)
A ERASE HEAD
AUDIO REC/PB
AUDIO ERASE
No Mark:PAL REC (Common)
( ):PAL PB
[ ]:NTSC REC
《 》:NTSC PB

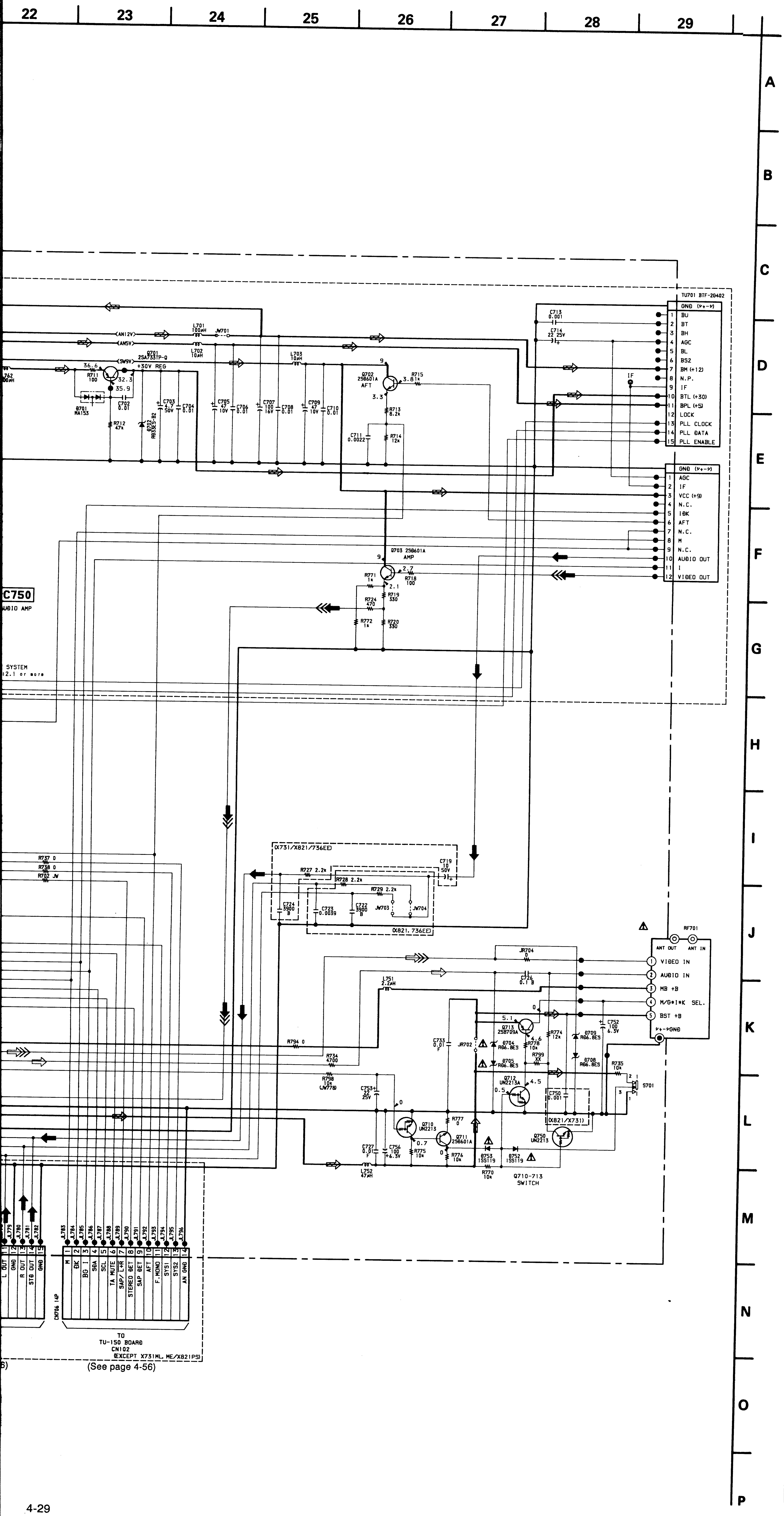
SERVO, SYSTEM CONTROL

PT-97 (POWER SUPPLY, TUNER) SCHEMATIC DIAGRAM

– Ref. No.: PT-97 Board; 3,000 series –


PT-97 BOARD
CJ801
(AC IN)
F801
FH101
FH102
R801 2.7 1/2W
C801 0.1µ 250V
LF801 10MH 0.5A
C802 0.1µ 250V
C804 0.001
C805 0.001
C806 0.001
(CHASSIS)
LF802
-13.1
D801 S1WB60
77.9
C803
270/400V
(X831, 736EE, 836EE, X821)
220/400V
(X731)
330/400V
(K881)
C807 0.001
C808 0.001
CP801
+IN
+IN
N.C.
-IN
-IN
-13V OUT
-13V OUT
13V OUT
GND
GND
6V OUT
-13.5
L813 22µH 2.0A
PS815 JW
C830 470µ 16V
C831 0.01µ F
12.9
L821 22µH 2.0A
C810 1000µ 16V
C811 1000µ 6.3V
6
L822 22µH 2.0A
JW807
D810 11ES2
12.1
Q810 2SB733-T-3
12.1
R810 1000 1/4W
11.4
R811 1000 1/2W
0.1
5.1
Q811 UN2211
C812 220µ 16V
IC810
+12V REG
IC810 PQ12RE11
12.9
13V
12V
12
C814 47µ 16V
5.1
C815 100µ 16V
12
IC811 PQ09NF15
12V
9V
9.0
C816 100µ 10V
12
D811 1SS119
C818 47µ 16V
R813 390 1/4W
C819 330µ 6.3V
Q812 2SB773-T-4
+5V REG
5.8
5.9
5.1
D862 MTZJ-T-77-5.1B
PS813 N25
PS811 N38
C821 330µ 6.3V
PS812 N25
CP802 HB01240
PS814 JW
L812 10µH
12.6
C822 47µ 16V
C823 0.01µ F
+IN
-IN
-27.5V
+35V
+5.4V
-5.4V
GND
No Mork:E-E M
05


11
12
13
14
15
16
17
18
19
20
21
22
Q810
12.1
11.4
R811 1000 1/2W
C812 220μ 16V
5.1
Q811 UN2211
JW (EXCEPT X731)
8.2 (X731)
R701
L761 4.7μH
CN701 19P
DIG 6V 1
3.58 NTSC 2
TU VIDEO 3
AN GND 4
D GND 5
D GND 6
CD CS 7
MOD CONT 8
COSMO RST 9
COSMO CS 10
SI BUS 11
SO BUS 12
S CLK 13
13V 14
MTR 12V 15
MTR 12V 16
MTR GND 17
MTR GND 18
SW 9V 19
TO MA202 BOARD CN302
(See page 4-23)
L760 4.7μH
CN703 20P
F (+) 1
F (-) 2
-30V 3
CD CS 4
SI BUS 5
SO BUS 6
S CLK 7
COSMO RST 8
COSMO CS 9
V SYNC 10
H DET 11
AN GND 12
AFT 13
SYS1 14
SYS0 15
N.C. 16
PLL ENABLE 17
PLL DATA 18
PLL CLK 19
N.C. 20
TO MF-246 BOARD CN103
(See page 4-35)
D761 MTZJ-T-72-6.2B
D762 MTZJ-T-72-6.2B
D763 MTZJ-T-72-6.2B
CN704 14P
FORCED 1
TA MUTE 2
TUN CONT 1 3
TUN CONT 0 4
TUN CONT 2 5
SDA 6
SCL 7
STEREO DET 8
POWER CONT 9
D6V 10
BUZZER 11
D GND 12
V DET 13
D GND 14
TO MF-246 BOARD CN104
(See page 4-35)
BZ701
C790 0.01 F
D751 1SS119
PM1
PM5
PM6
PM2
PM3
PM4
MF2
MF1
-29.1
-27.5V
37.3
+35V
+5.4V
-5.4V
GND
R814 JW
C829 47μ 16V
C824 47μ 50V
C826 47μ 50V
No Mark:E-E MODE
(X731/X821/736EE)
(DC35V)
L762 100μH
Q719 2SD601A
Q714 2SD601A
Q715 2SD601A
Q716 2SD601A
Q717 2SD601A
Q718 2SD601A
FL750 LPF
FL751 LPF
FL752 LPF
TV SYSTEM I:5.1 DK:0
TV SYSTEM BG:5.1
TV SYSTEM BG:2.1 or more
IC750
AUDIO AMP
IC750 NJM2903D
R796 4.7k
R797 4.7k
R787 68k
R788 10k
R790 0
R737 0
R738 0
R702 JW
R703 JW
R704 JW
R705 JW
R726 1k
C718 10p CH
R723 1k
R748 1k
R706 0
R707 0
R708 0
R709 0
R710 0
R725 1k
C717 10p CH
R749 1k
R739 0
CN702 13P
MONO OUT 1
AU GND 2
TA AU L OUT 3
AU GND 4
TU AU R OUT 5
MOD AU IN 6
AN 12V 7
-13V 8
MOD VIDEO IN 9
AN 5V 10
V SYNC 11
H DET 12
TO MA-202 BOARD CN301
(See page 4-23)
CN705 15P
PLL CLOCK 1
PLL DATA 2
PLL ENABLE 3
UNSW 12V 4
+35V 5
UNSW 5V 6
UNSW 9V 7
GND 8
VIDEO OUT 9
VIDEO GND 10
L OUT 11
GND 12
R OUT 13
GND 14
STB OUT 15
TO TU-150 BOARD CN101
(See page 4-56)
CN706 14P
M 1
DK 2


22
23
24
25
26
27
28
29
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
TU701 BTF-20402
GND (V+-V)
BU
BT
BH
AGC
BL
BS2
BM (+12)
N.P.
IF
BTL (+30)
BPL (+5)
LOCK
PLL CLOCK
PLL DATA
PLL ENABLE
GND (V+-V)
AGC
IF
VCC (+9)
N.C.
10K
AFT
N.C.
M
N.C.
AUDIO OUT
I
VIDEO OUT
C713 0.001
C714 22 25V
L701 100μH
JW701
L702 10μH
L703 10μH
Q701 2SA733TP-Q +30V REG
R711 100
D701 MA153
C702 0.01
R712 47k
C703 4.7 50V
C704 0.01
C705 47 10V
C706 0.01
C707 100 16V
C708 0.01
C709 47 10V
C710 0.01
Q702 2SB601A AFT
R715 1k
R713 8.2k
R714 12k
C711 0.0022
Q703 2SB601A AMP
R771 1k
R718 100
R719 330
R724 470
R772 1k
R720 330
C750
AUDIO AMP
SYSTEM
(AN12V)
(AN5V)
(SW9V)
36.6
32.3
35.9
3.8
3.3
9
2.7
2.1
IF
R737 0
R738 0
R702 JW
(X731/X821/736EE)
R727 2.2k
R728 2.2k
R729 2.2k
C719 10 50V
C724 3900 B
C723 0.0039
C722 3900 B
JW703
JW704
(X821, 736EE)
RF701
ANT OUT
ANT IN
VIDEO IN
AUDIO IN
MB +B
M/G*I*K SEL.
BST +B
V+-VGND
JR704 0
C726 0.1 B
L751 2.2μH
R794 0
R734 4700
R798 10k (JW778)
C733 0.01 F
JR702
Q713 2SB709A
D704 RD6.8ES
D705 RD6.8ES
R778 10k
R774 12k
R799 XX
D709 RD6.8ES
D708 RD6.8ES
C752 100 6.3V
R735 10k
S701
Q712 UN2213A
C750 0.001
(X821/X731)
C753 22 25V
Q710 UN2213
R777 0
Q711 2SB601A
Q750 UN2213
C727 0.01 F
C756 100 6.3V
R775 10k
R776 10k
D753 1SS119
D752 1SS119
R770 10k
L752 47μH
Q710-713 SWITCH
5.1
4.6
4.5
0.5
0.7
0
L OUT
GND
R OUT
STG OUT
GND
M
DK
BG
SDA
SCL
TA MUTE
SAP/L+R
STEREO DET
SAP DET
AFT
F.MONO
SYS1
SYS2
AN GND
CN704 14P
TO
TU-150 BOARD
CN102
(EXCEPT X731ML, ME/X821PS)
(See page 4-56)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ＊ : Impossible to measure the voltage at the marked points.
- Signal path

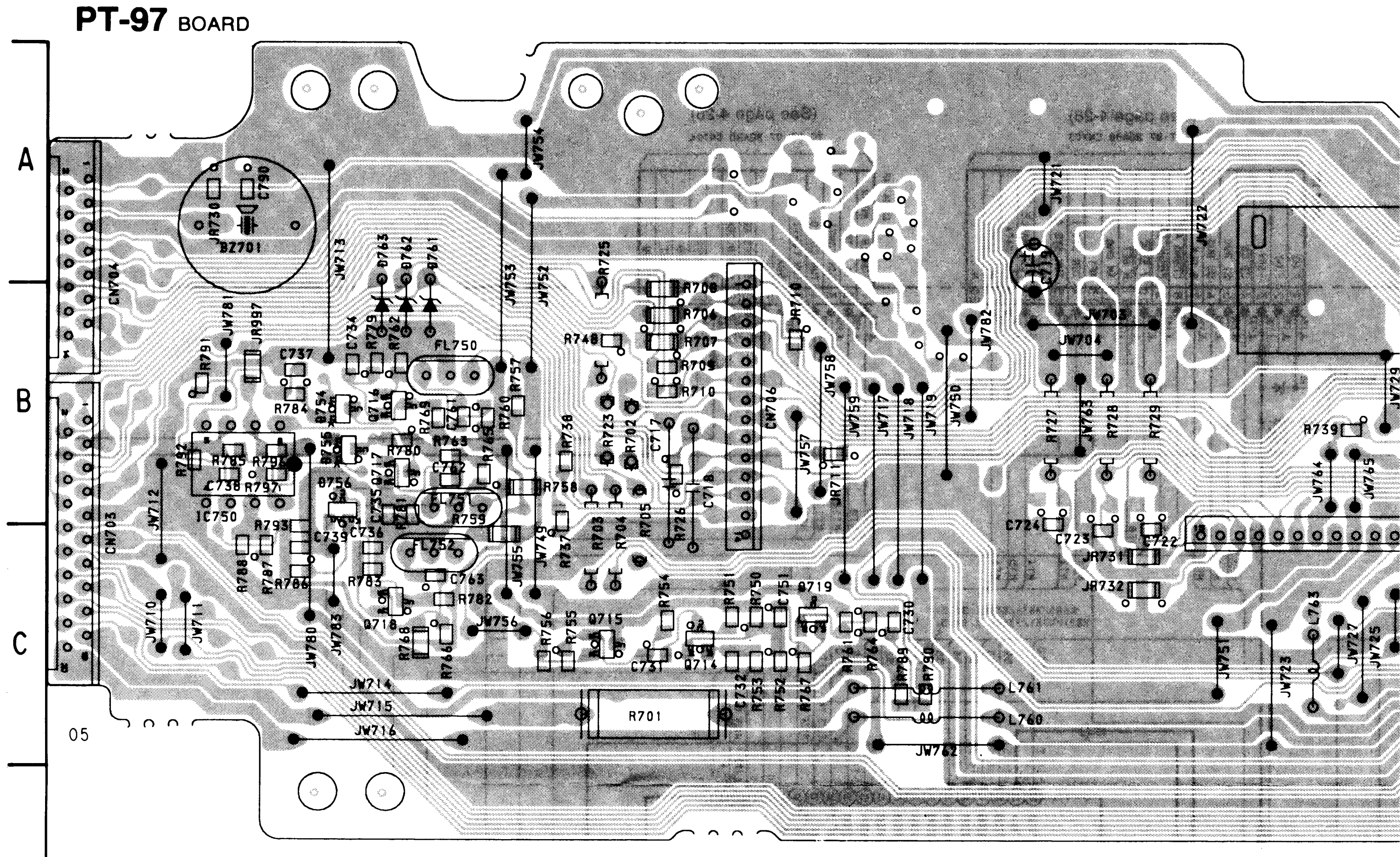
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡⋙	➡
PB	⇨	⇨»	⇨⋙	⇨

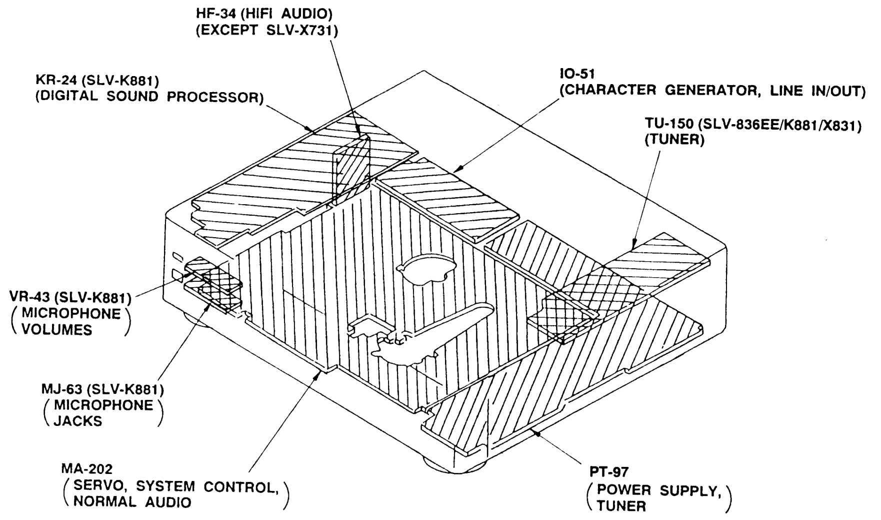
PT-97 (POWER SUPPLY, TUNER) PRINTED WIRING BOARD

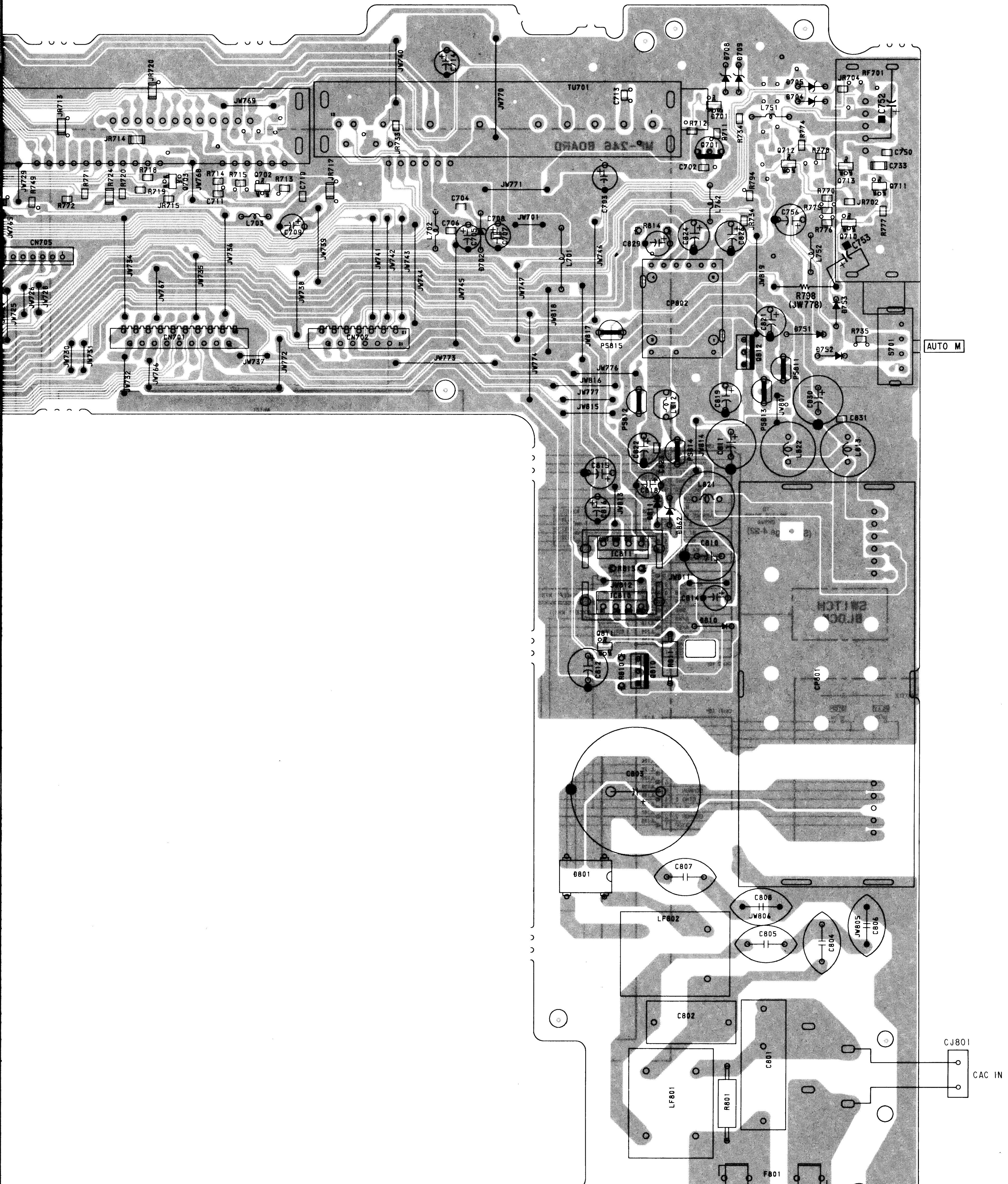
– Ref. No.: PT-97 Board; 3,000 series –

PT-97 BOARD

CN701	C-7
CN702	C-9
CN703	B-1
CN704	A-1
CN705	C-6
CN706	B-3
D701	A-12
D702	B-10
D704	A-12
D705	A-12
D708	A-12
D709	A-12
D751	C-12
D752	C-13
D753	C-13
D754	B-2
D755	B-2
D756	B-2
D761	B-2
D762	B-2
D763	B-2
D801	H-11
D810	F-12
D811	E-11
D862	E-11
IC750	B-1
IC810	E-11
IC811	E-11
Q701	B-12
Q702	B-8
Q703	B-7
Q710	B-13
Q711	B-13
Q712	B-12
Q713	B-13
Q714	C-3
Q715	C-3
Q716	B-2
Q717	B-2
Q718	C-2
Q719	C-4
Q810	F-11
Q811	F-11
Q812	C-12


PT-97 BOARD
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
CN704
CN703
CN706
BZ701
C790
JR730
JW781
JR997
R791
C737
C734
D763
D762
D761
JW713
JW753
JW752
JW754
FL750
FL751
FL752
IC750
R783
R784
R785
R786
R787
R788
R792
R793
C736
C738
C739
C762
C763
Q716
Q717
Q718
Q714
Q715
Q719
JW710
JW711
JW712
JW714
JW715
JW716
JW755
JW756
JW762
JW780
JW783
R701
R703
R704
R705
R706
R707
R709
R710
R748
R755
R756
C731
C732
C717
C718
C730
L760
L761
JW717
JW718
JW719
JW757
JW758
JW759
JW782
JW790
JW721
JW722
JW704
JW764
JW765
JW729
JW751
JW723
JW727
JW725
R722
R727
R728
R729
R739
C722
C723
C724
JR751
JR732
L763
05

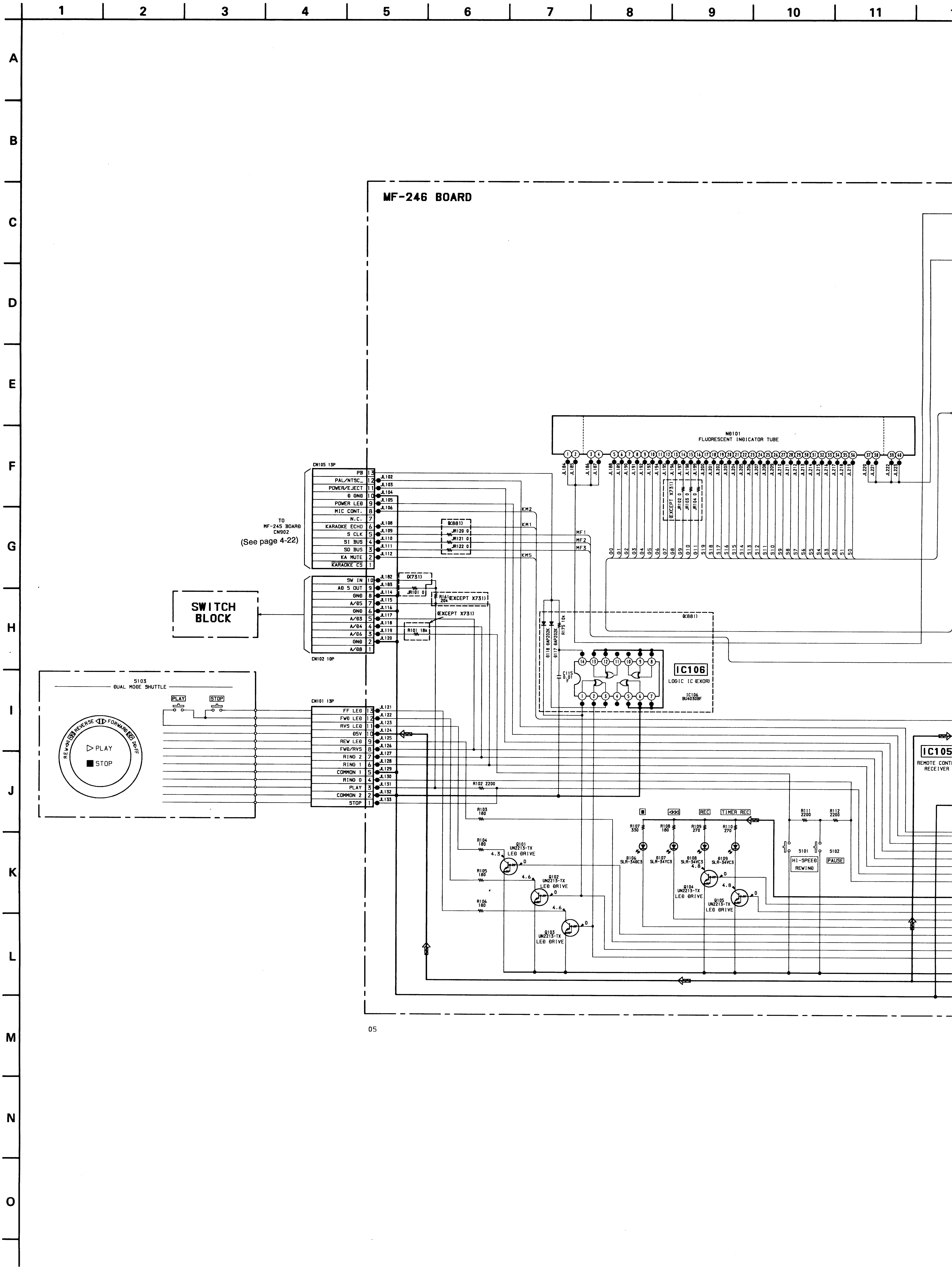

HF-34 (HIFI AUDIO)
(EXCEPT SLV-X731)
KR-24 (SLV-K881)
(DIGITAL SOUND PROCESSOR)
IO-51
(CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831)
(TUNER)
VR-43 (SLV-K881)
(MICROPHONE VOLUMES)
MJ-63 (SLV-K881)
(MICROPHONE JACKS)
MA-202
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97
(POWER SUPPLY, TUNER)


TU701
MP-24G BOARD
CN705
CN701
CN702
JW769
JR714
JW770
JW771
JW773
JW776
JW777
JW815
JW816
JW817
JW818
L701
L702
L703
L751
L752
C704
C706
C708
C709
C713
C753
C756
R798
(JW778)
D751
D752
D753
R735
S701
AUTO M
PS815
PS812
PS813
PS814
CP802
CP801
IC811
IC810
SWITCH BLOCK
C803
D801
C807
C808
JW806
C805
C804
JW805
C806
LF802
C802
C801
LF801
R801
F801
CJ801
CAC IN
1-651-689-
12
6
7
8
9
10
11
12
13

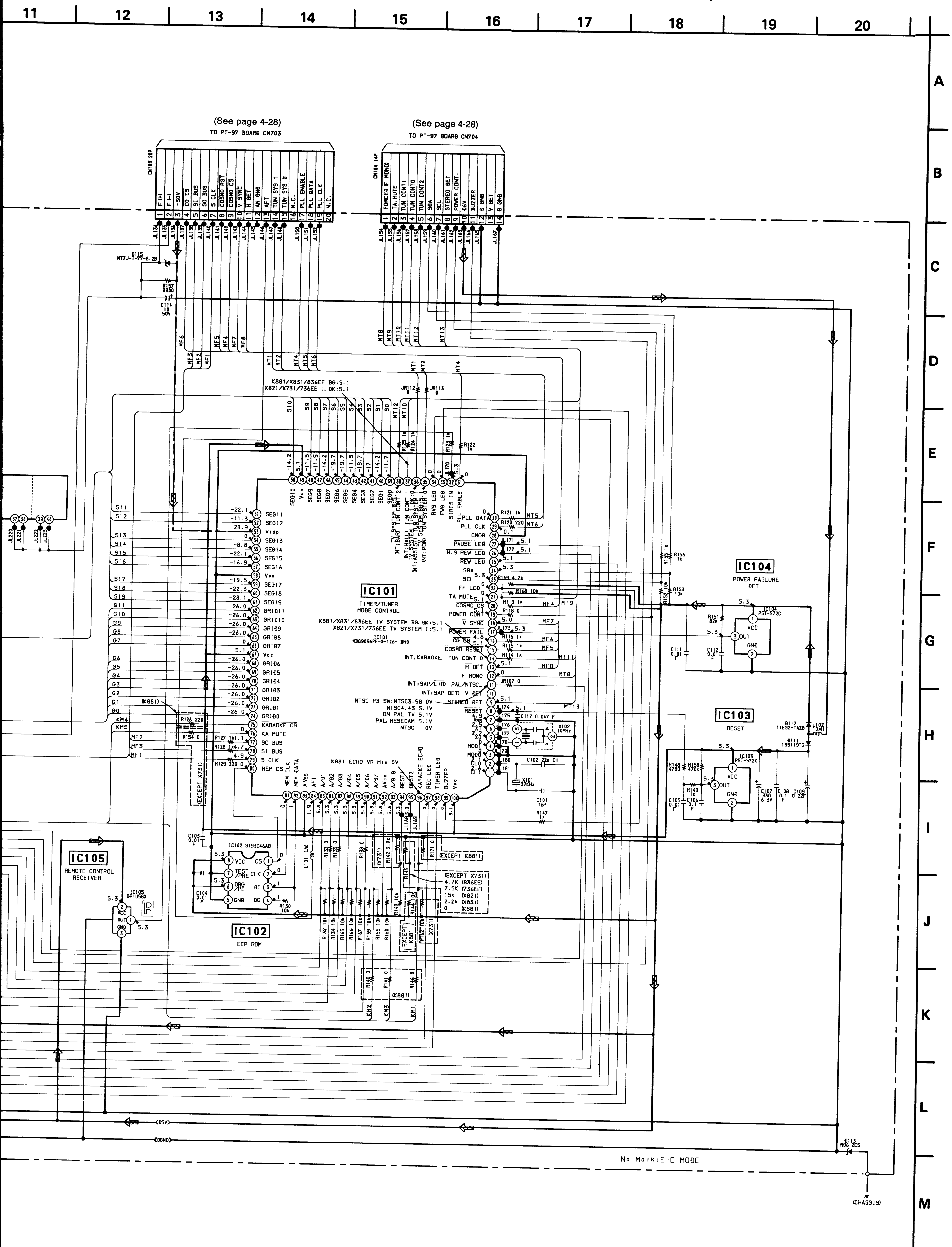
POWER SUPPLY, TUNER

MF-246 (MODE CONTROL) SCHEMATIC DIAGRAM

– Ref. No.: MF-246 Board; 5,000 series –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
MF-246 BOARD
CN105 13P
PB 13
PAL/NTSC_ 12
POWER/EJECT 11
D GND 10
POWER LED 9
MIC CONT. 8
N.C. 7
KARAOKE ECHO 6
S CLK 5
SI BUS 4
SO BUS 3
KA MUTE 2
KARAOKE CS 1
JL102
JL103
JL104
JL105
JL106
JL108
JL109
JL110
JL111
JL112
TO
MF-245 BOARD
CN902
(See page 4-22)
(K881)
JR120 0
JR121 0
JR122 0
KM2
KM1
MF1
MF2
MF3
KM5
SW IN 10
AD 5 OUT 9
GND 8
A/D5 7
GND 6
A/D3 5
A/D4 4
A/D6 3
GND 2
A/D8 1
CN102 10P
JL182
JL183
JL114
JL115
JL116
JL117
JL118
JL119
JL120
(X731)
JR101 0
R161 20k
(EXCEPT X731)
(EXCEPT X731)
R101 18k
SWITCH
BLOCK
S103
DUAL MODE SHUTTLE
PLAY
STOP
REVERSE
FORWARD
REW
FF
▷ PLAY
■ STOP
CN101 13P
FF LED 13
FWD LED 12
RVS LED 11
D5V 10
REW LED 9
FWD/RVS 8
RING 2 7
RING 1 6
COMMON 1 5
RING 0 4
PLAY 3
COMMON 2 2
STOP 1
JL121
JL122
JL123
JL124
JL125
JL126
JL127
JL128
JL129
JL130
JL131
JL132
JL133
ND101
FLUORESCENT INDICATOR TUBE
JL184
JL185
JL186
JL187
JL188
JL189
JL190
JL191
JL192
JL193
JL194
JL195
JL196
JL197
JL198
JL199
JL200
JL201
JL202
JL203
JL204
JL205
JL206
JL207
JL208
JL209
JL210
JL211
JL212
JL213
JL214
JL215
JL216
JL217
JL218
JL219
JL220
JL221
JL222
JL223
(EXCEPT X731)
JR102 0
JR103 0
JR104 0
G0
G1
G2
G3
G4
G5
G6
G7
G8
G9
G10
G11
S19
S18
S17
S16
S15
S14
S13
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
S2
S1
S0
(K881)
D118 DAP202K
D117 DAP202K
R175 10k
C115
0.01
F
IC106
LOGIC IC (EXOR)
IC106
BU4030BF
IC105
REMOTE CONT
RECEIVER
R102 2200
R103
180
R104
180
R105
180
R106
180
Q101
UN2213-TX
LED DRIVE
Q102
UN2213-TX
LED DRIVE
Q103
UN2213-TX
LED DRIVE
4.3
4.6
4.6
0
■
⊲⊲⊲
REC
TIMER REC
R107
330
R108
180
R109
270
R110
270
D106
SLR-34DC3
D107
SLR-34YC3
D108
SLR-34VC3
D109
SLR-34VC3
Q104
UN2213-TX
LED DRIVE
Q105
UN2213-TX
LED DRIVE
4.8
R111
2200
R112
2200
S101
HI-SPEED
REWIND
S102
PAUSE
05

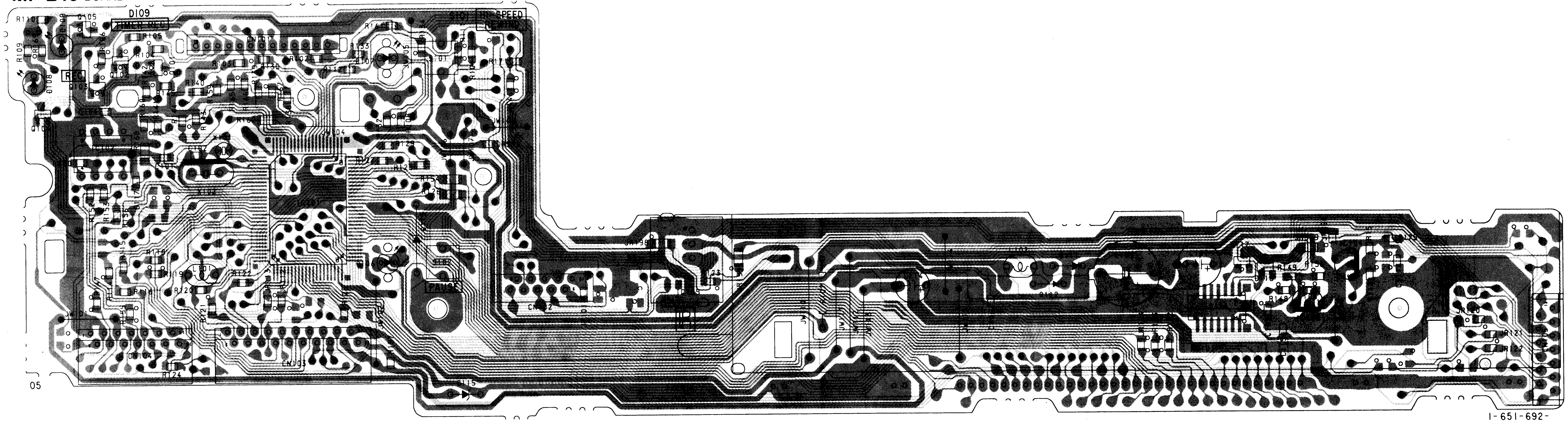
MODE CONTROL

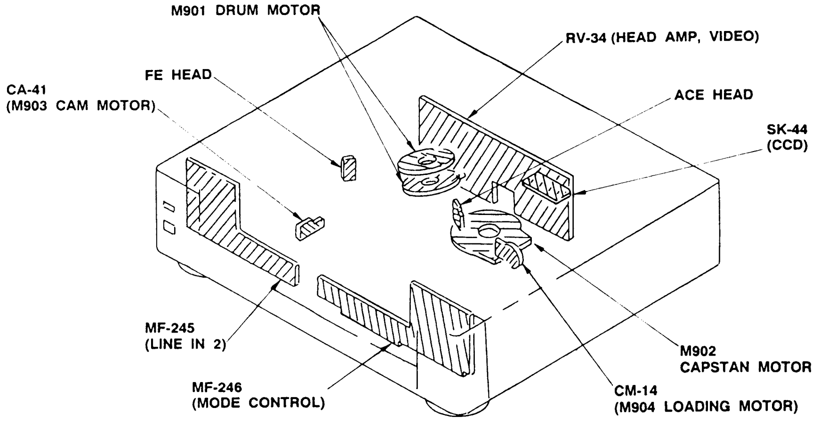

11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
(See page 4-28)
TO PT-97 BOARD CN703
(See page 4-28)
TO PT-97 BOARD CN704
CN103 20P
1 F(+)
2 F(-)
3 -30V
4 CG CS
5 S1 BUS
6 S0 BUS
7 S CLK
8 COSMO RST
9 COSMO CS
10 V SYNC
11 H DET
12 AN GND
13 AFT
14 TUN SYS 1
15 TUN SYS 0
16 N.C.
17 PLL ENABLE
18 PLL DATA
19 PLL CLK
20 N.C.
CN104 14P
1 FORCED MONO
2 TA.MUTE
3 TUN CONT1
4 TUN CONT0
5 TUN CONT2
6 SDA
7 SCL
8 STEREO DET
9 POWER CONT.
10 D6V
11 BUZZER
12 D GND
13 V DET
14 D GND
IC101
TIMER/TUNER MODE CONTROL
IC101 MB89096PF-G-126-BND
K881/X831/836EE BG:5.1
X821/X731/736EE I, DK:5.1
K881/X831/836EE TV SYSTEM BG, DK:5.1
X821/X731/736EE TV SYSTEM I:5.1
NTSC PB SW:NTSC3.58 0V
NTSC4.43 5.1V
ON PAL TV 5.1V
PAL MESECAM 5.1V
NTSC 0V
K881 ECHO VR Min 0V
IC102
EEP ROM
IC102 S93C46AB1
IC103
RESET
IC103 PST-572K
IC104
POWER FAILURE DET
IC104 PST-572C
IC105
REMOTE CONTROL RECEIVER
IC105 SBX1USBX
X102 10MHz
X101 32KHz
(K881)
(EXCEPT X731)
(EXCEPT K881)
(X731)
(EXCEPT X731)
4.7K (836EE)
7.5K (736EE)
15k (X821)
2.2k (X831)
0 (K881)
(B5V)
(BGND)
No Mark:E-E MODE
(CHASSIS)

MF-246 (MODE CONTROL) PRINTED WIRING BOARD

– Ref. No.: MF-246 Board; 5,000 series –

MF-246 BOARD


D109
TIMER REC
REC
PAUSE
CN103
CN102
05
12
1-651-692-


M901 DRUM MOTOR
RV-34 (HEAD AMP, VIDEO)
FE HEAD
ACE HEAD
CA-41
(M903 CAM MOTOR)
SK-44
(CCD)
MF-245
(LINE IN 2)
M902
CAPSTAN MOTOR
MF-246
(MODE CONTROL)
CM-14
(M904 LOADING MOTOR)

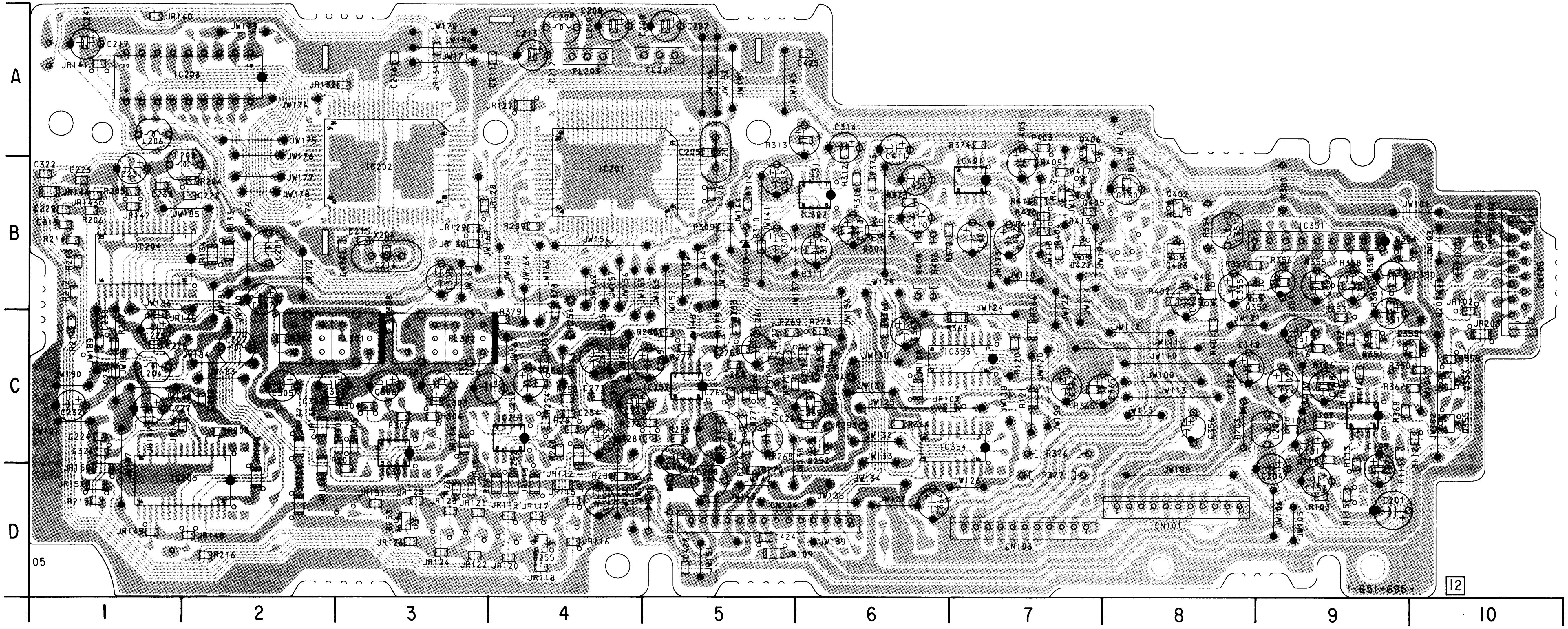
KR-24 (DIGITAL SOUND PROCESSOR), MJ-63 (MICROPHONE JACKS), VR-43 (MICROPHONE VOLUMES) PRINTED WIRING BOARDS

– Ref. No.: KR-24, MJ-63 and VR-43 Boards; 8,000 series –

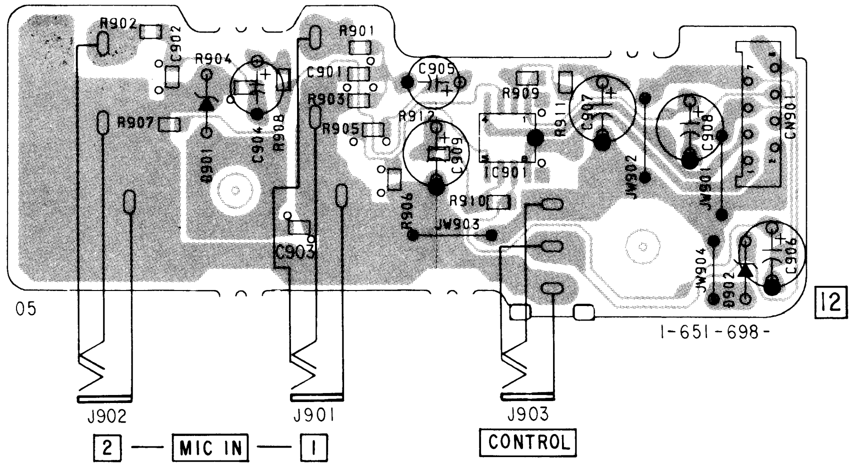
KR-24 BOARD

CN101	D-8
CN103	D-7
CN104	D-5
CN105	B-10
D201	D-5
D202	B-10
D203	C-8
D204	D-5
D205	B-10
D206	B-10
D207	B-10
D253	D-3
D255	D-4
D257	D-3
D301	B-6
D302	B-5
D422	B-7
IC101	C-9
IC201	B-4
IC202	B-3
IC203	A-2
IC204	B-1
IC205	D-1
IC251	C-3
IC252	C-4
IC301	C-3
IC302	B-6
IC351	B-9
IC353	C-7
IC354	C-7
IC401	B-7
Q252	C-6
Q253	C-6
Q350	C-10
Q351	C-9
Q352	B-9
Q353	C-10
Q354	B-9
Q355	C-10
Q401	B-8
Q402	B-8
Q403	B-8
Q405	B-7
Q406	A-7

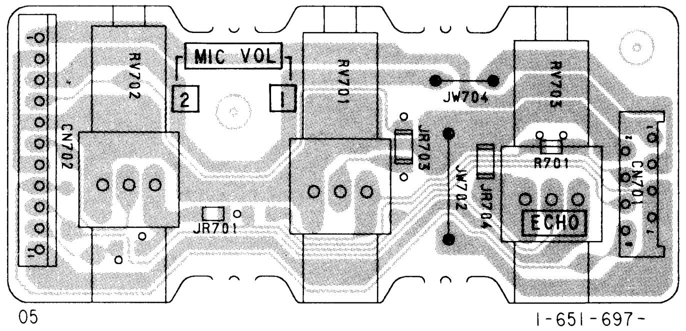
KR-24 BOARD (SLV-K881 ONLY)

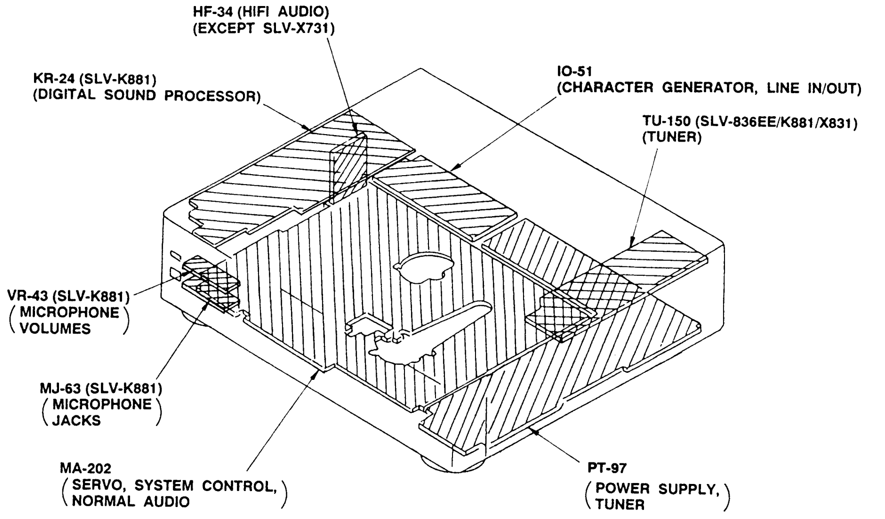

A
B
C
D
1
2
3
4
5
6
7
8
9
10
05
IC201
IC202
IC203
IC204
IC205
IC251
IC252
IC301
IC302
IC351
IC353
IC354
IC401
IC101
CN101
CN103
CN104
CN105
FL201
FL203
FL301
FL302
X201
X204
1-651-695-
12

MJ-63 BOARD (SLV-K881 ONLY)


R902
C902
R904
D901
C904
R908
R901
C901
R903
R905
C903
C905
R912
C909
IC901
R909
R911
R910
C907
JW903
JW902
C908
CN901
JW901
JW904
D902
C906
R906
R907
05
1-651-698-
12
J902
J901
J903
2
MIC IN
1
CONTROL

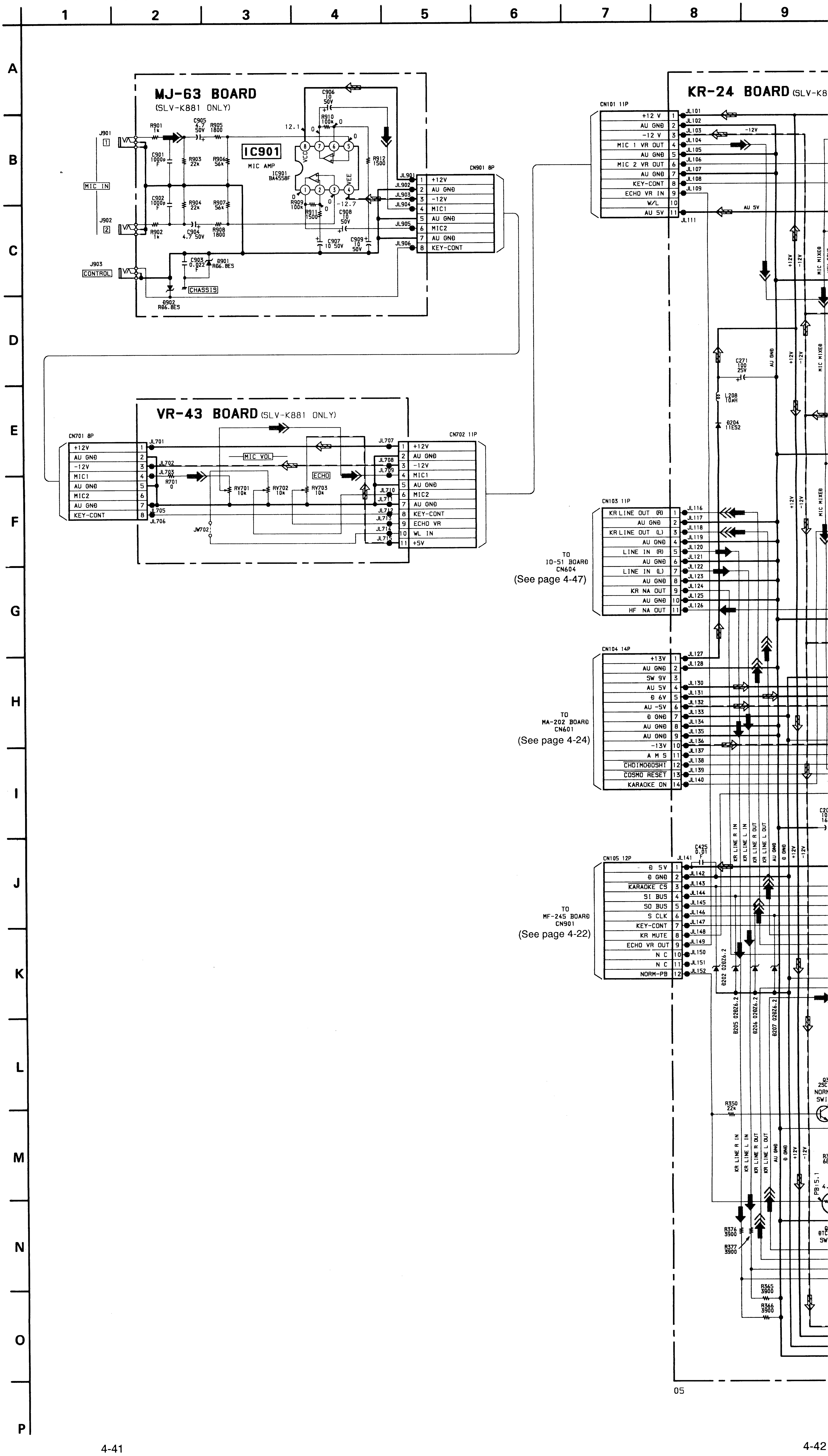
VR-43 BOARD


MIC VOL
2
1
RV702
RV701
RV703
CN702
JR703
JR701
JW702
JW704
JR704
R701
ECHO
CN701
05
1-651-697-
12


HF-34 (HIFI AUDIO)
(EXCEPT SLV-X731)
KR-24 (SLV-K881)
(DIGITAL SOUND PROCESSOR)
IO-51
(CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831)
(TUNER)
VR-43 (SLV-K881)
(MICROPHONE VOLUMES)
MJ-63 (SLV-K881)
(MICROPHONE JACKS)
MA-202
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97
(POWER SUPPLY, TUNER)

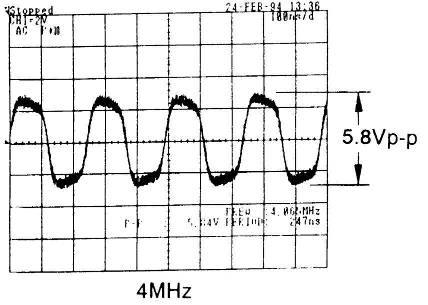
KR-24 (DIGITAL SOUND PROCESSOR), MJ-63 (MICROPHONE JACKS), VR-43 (MICROPHONE VOLUMES) SCHEMATIC DIAGRAM

– Ref. No.: KR-24, MJ-63 and VR-43 Boards; 8,000 series –

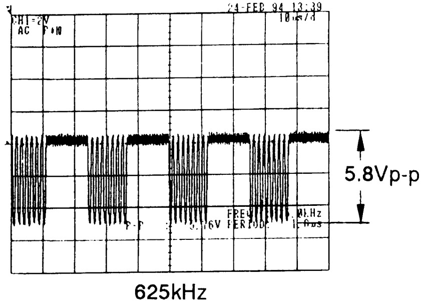

1 2 3 4 5 6 7 8 9
A B C D E F G H I J K L M N O P
MJ-63 BOARD (SLV-K881 ONLY)
J901
J902
J903
MIC IN
CONTROL
CHASSIS
IC901
MIC AMP
IC901 BA4558F
CN901 8P
+12V
AU GND
-12V
MIC1
AU GND
MIC2
AU GND
KEY-CONT
VR-43 BOARD (SLV-K881 ONLY)
CN701 8P
CN702 11P
MIC VOL
ECHO
RV701 10k
RV702 10k
RV703 10k
ECHO VR
WL IN
+5V
KR-24 BOARD (SLV-K8
CN101 11P
MIC 1 VR OUT
MIC 2 VR OUT
ECHO VR IN
W/L
AU 5V
CN103 11P
KR LINE OUT (R)
KR LINE OUT (L)
LINE IN (R)
LINE IN (L)
KR NA OUT
HF NA OUT
TO 10-51 BOARD CN604
(See page 4-47)
CN104 14P
+13V
SW 9V
D 6V
AU -5V
D GND
-13V
A M S
CHOIMODOSHI
COSMO RESET
KARAOKE ON
TO MA-202 BOARD CN601
(See page 4-24)
CN105 12P
D 5V
KARAOKE CS
SI BUS
SO BUS
S CLK
KR MUTE
ECHO VR OUT
N C
NORM-PB
TO MF-245 BOARD CN901
(See page 4-22)
MIC MIXED
05

KR-24 BOARD

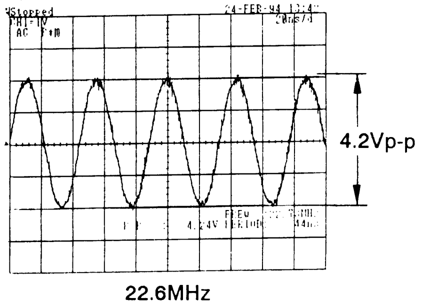
❶ IC201 ⑫ REC/PB



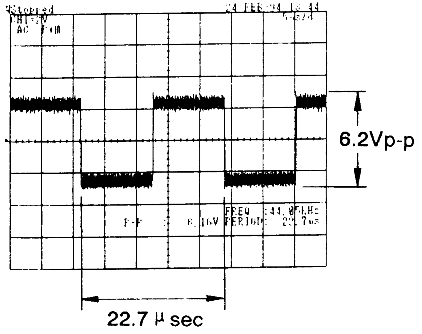
❷ IC201 ㊹ REC/PB



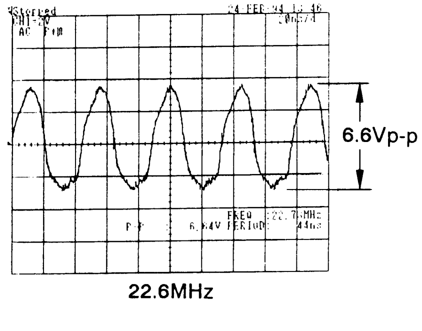
❸ IC202 ㊷ REC/PB



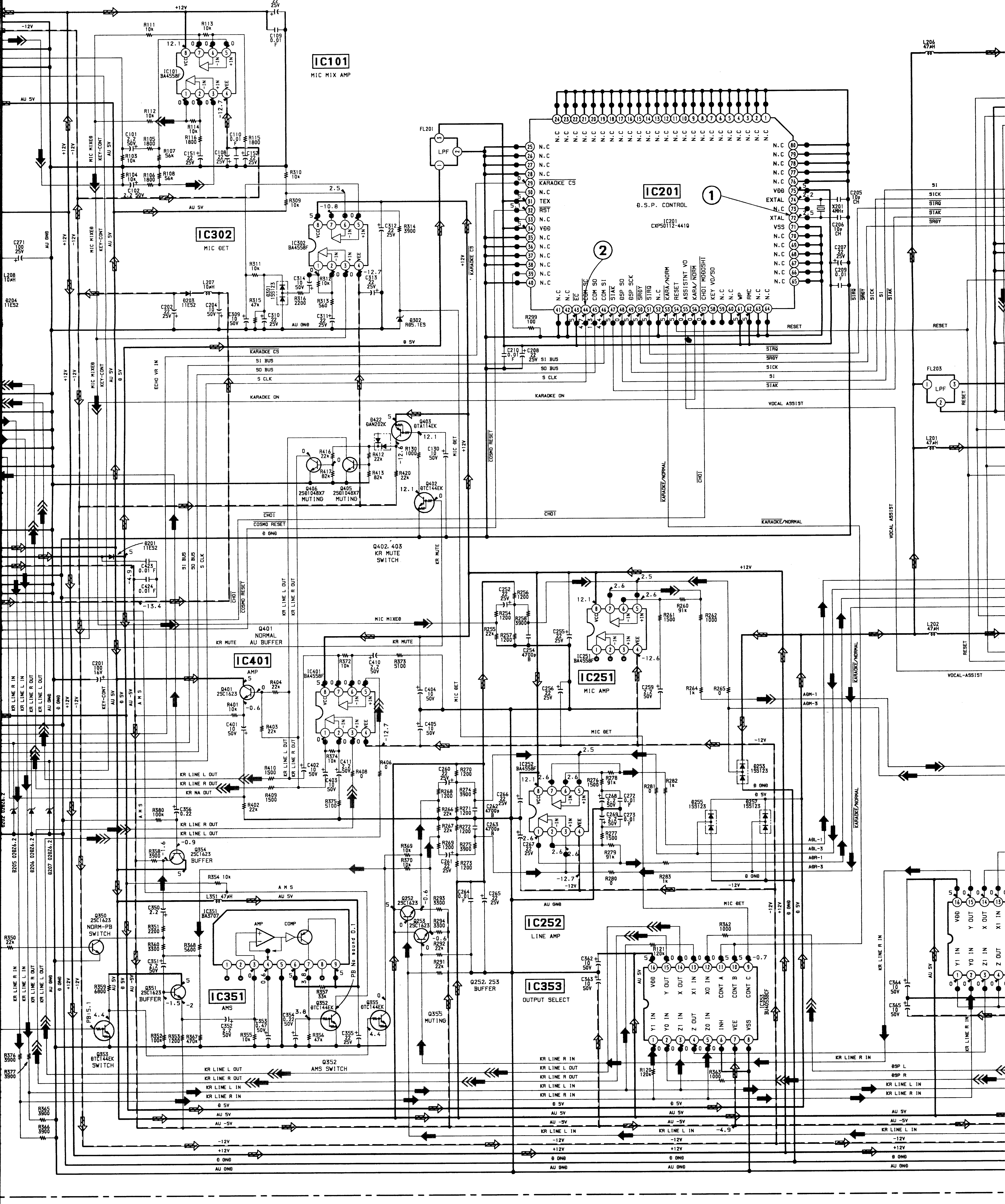
❹ IC204 ㉑, IC205 ㉖ REC/PB

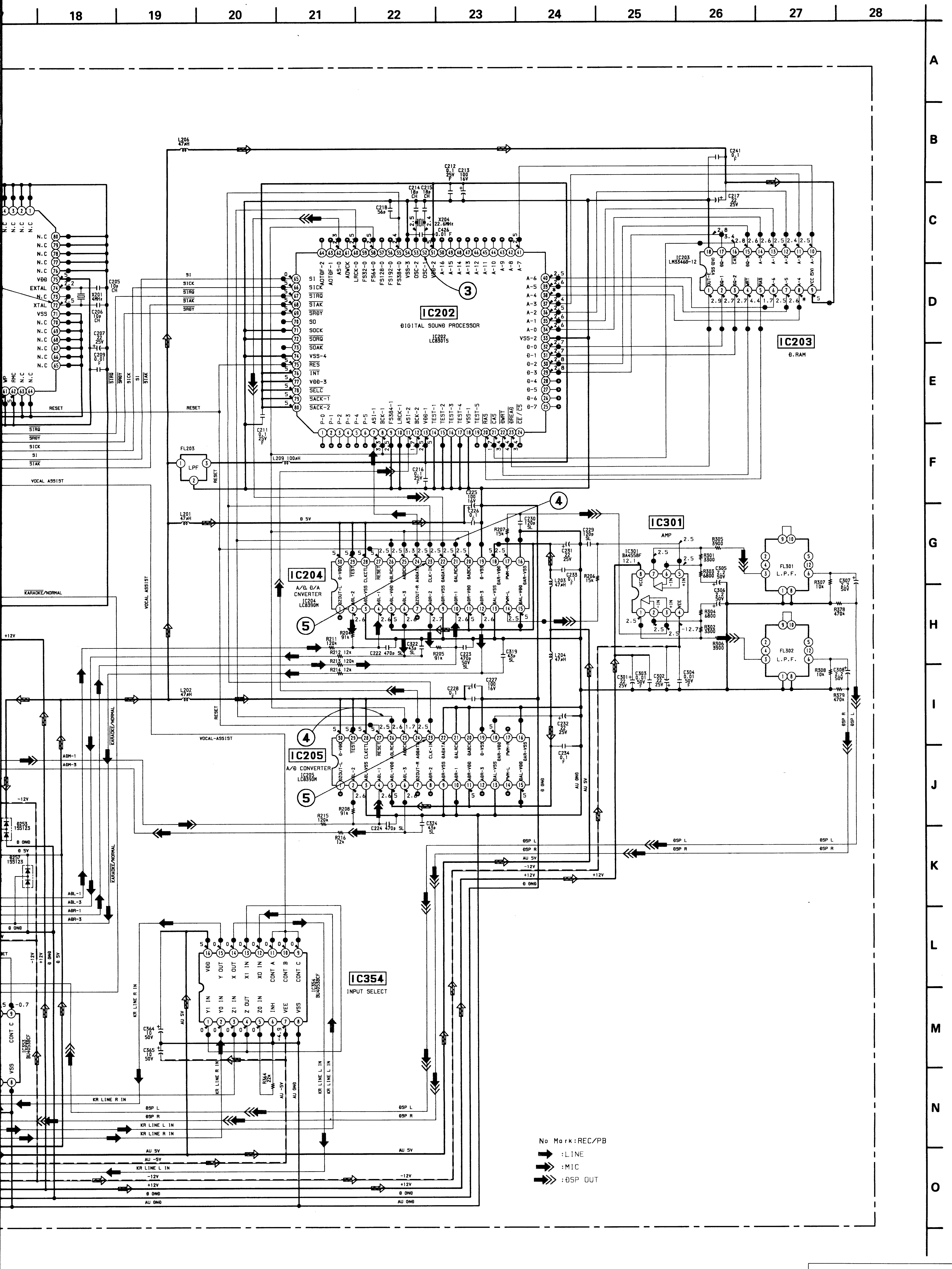


❺ IC204 ㉓, IC205 ㉓ REC/PB



4 BOARD (SLV-K881ML ONLY)

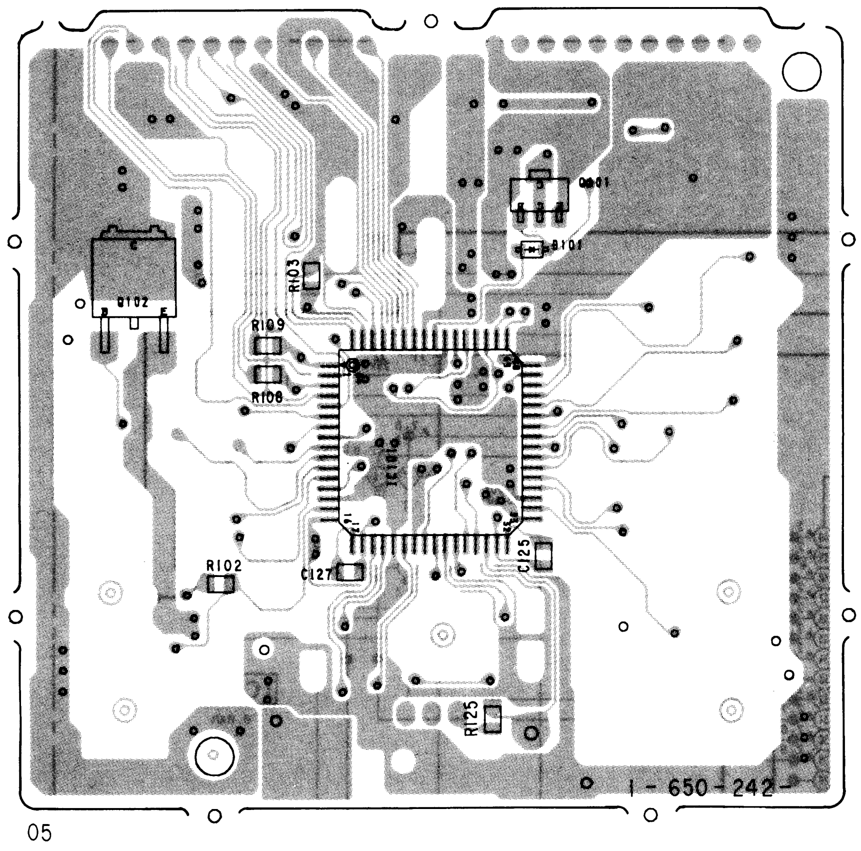

IC101
MIC MIX AMP
IC101 BA4558F
IC302
MIC DET
IC302 BA4558F
IC201
D.S.P. CONTROL
IC201 CXP50112-441Q
FL201
LPF
FL203
X201 4MHz
KARAOKE CS
N.C
TEX
RST
VDD
VSS
EXTAL
XTAL
COM SC
COM SO
COM SI
SIAK
DSP SO
DSP SCK
SIRQ
SRDY
KARA/NORM
RESET
ASSISTNT VO
KARA/ NORM
CHOI MODOSHI
KEY VO/SO
WP
RMC
SI BUS
SO BUS
S CLK
KARAOKE ON
VOCAL ASSIST
CHOI
COSMO RESET
D GND
AU GND
AU 5V
+12V
-12V
D 5V
MIC MIXED
KEY-CONT
ECHO VR IN
Q402, 403
KR MUTE
SWITCH
Q403 DTA114EK
Q402 DTC144EK
Q406 2SD1048X7 MUTING
Q405 2SD1048X7 MUTING
D422 DAN202K
Q401
NORMAL
AU BUFFER
Q401 2SC1623
IC401
AMP
IC401 BA4558F
IC251
MIC AMP
IC251 BA4558F
IC252
LINE AMP
IC252 BA4558F
Q252, 253
BUFFER
Q252 2SC1623
Q253 2SC1623
IC353
OUTPUT SELECT
IC353 BU4053BCF
IC351
AMS
IC351 BA3707
AMP
COMP
PB No sound 0.1
Q352 DTC144EK
Q352
AMS SWITCH
Q355 DTC144EK
Q355
MUTING
Q351 2SC1623
BUFFER
Q354 2SC1623
BUFFER
Q350 2SC1623
NORM-PB SWITCH
Q353 DTC144EK
SWITCH
PB:5.1
MIC DET
KR LINE L OUT
KR LINE R OUT
KR LINE L IN
KR LINE R IN
KR NA OUT
A M S
AGM-1
AGM-3
AGL-1
AGL-3
AGR-1
AGR-3
D255 1SS123
D257 1SS123
D253 1SS123
D201 1ES2
D203 1ES2
D301 1SS123
D302 RD5.1ES
DSP L
DSP R
VOCAL-ASSIST
L206 47μH
L201 47μH
L202 47μH
L207 10μH
L351 47μH
VDD
Y OUT
X OUT
XI IN
CONT A
CONT B
CONT C
Y1 IN
Y0 IN
Z1 IN
Z OUT
Z0 IN
INH
VEE
VSS
①
②


IC202
DIGITAL SOUND PROCESSOR
IC202 LC83015
IC203
D.RAM
IC203 LM33460-12
IC204
A/D, D/A CNVERTER
IC204 LC8390M
IC205
A/D CONVERTER
IC205 LC8390M
IC301
AMP
IC301 BA4558F
IC354
INPUT SELECT
IC354 BU4053BCF
IC353 BU4053BCF
FL203
LPF
FL301 L.P.F.
FL302 L.P.F.
X201 4MHz
X204 22.6MHz
D253 1SS123
D257 1SS123
VOCAL ASSIST
KARAOKE/NORMAL
RESET
DSP L
DSP R
AU 5V
AU -5V
-12V
+12V
D GND
AU GND
D 5V
KR LINE L IN
KR LINE R IN
ADM-1
ADM-3
ADL-1
ADL-3
ADR-1
ADR-3
No Mark:REC/PB
:LINE
:MIC
:DSP OUT

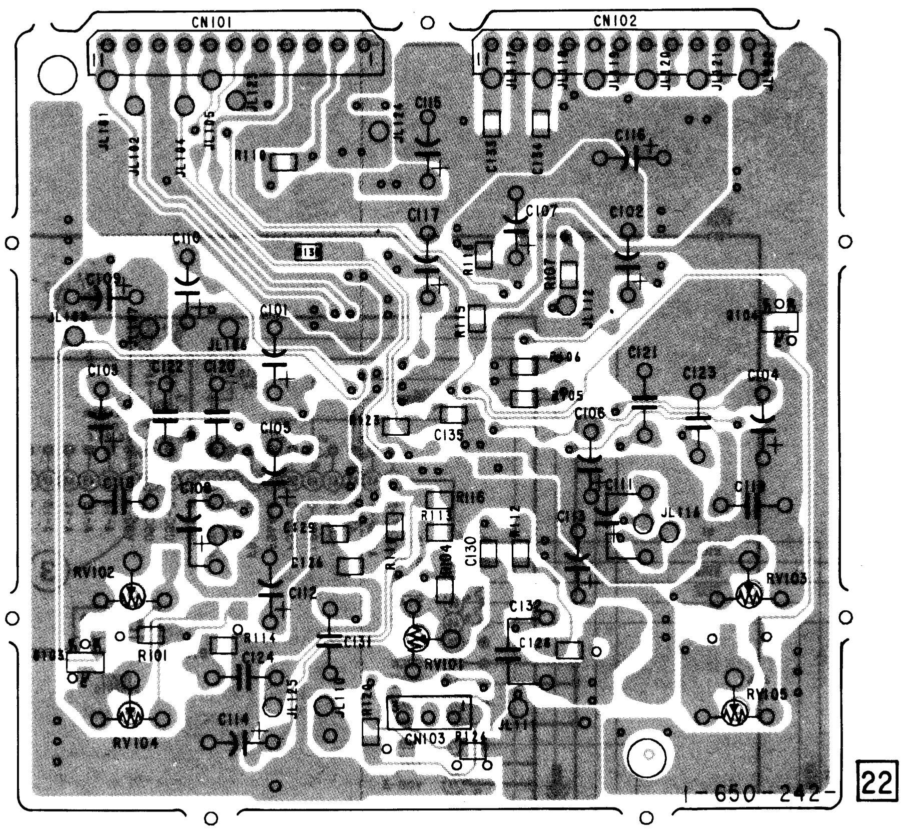
HF-34 (HiFi AUDIO) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: HF-34 Board; 6,000 series –

HF-34 BOARD (COMPONENT SIDE)


Q101
R101
Q102
R103
R109
R108
IC101
R102
C127
C125
R125
1-650-242-
22
05

HF-34 BOARD (CONDUCTOR SIDE)

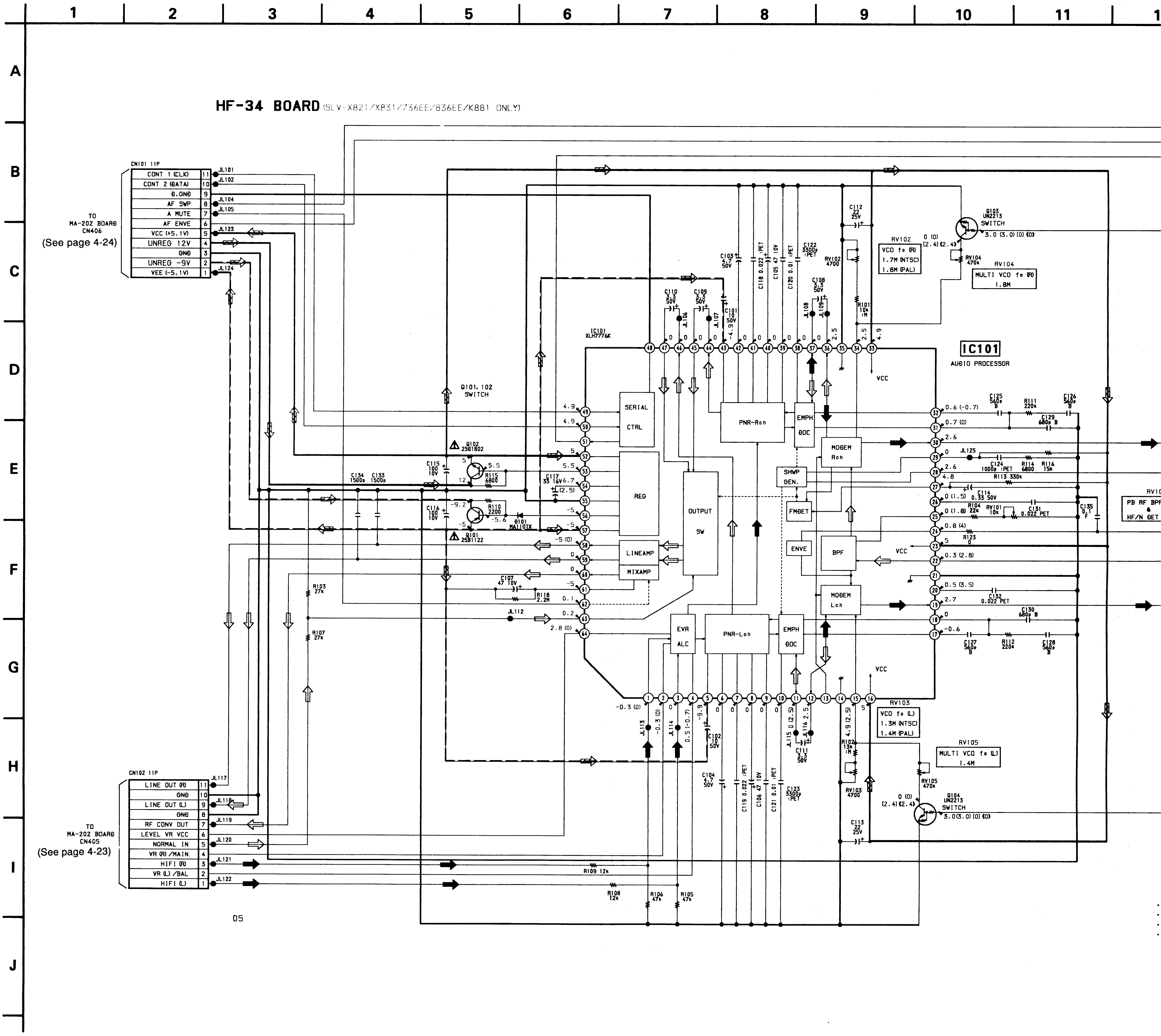

CN101
CN102
C116
C115
C117
C107
C102
C110
C101
C103
C122
C120
C121
C123
C104
C105
C106
C135
C111
C130
C131
C132
C126
C124
C114
C129
RV102
RV101
RV103
RV104
RV105
R101
R114
R104
R113
R116
R106
R105
R107
R115
R110
CN103
D101
22
1-650-242-

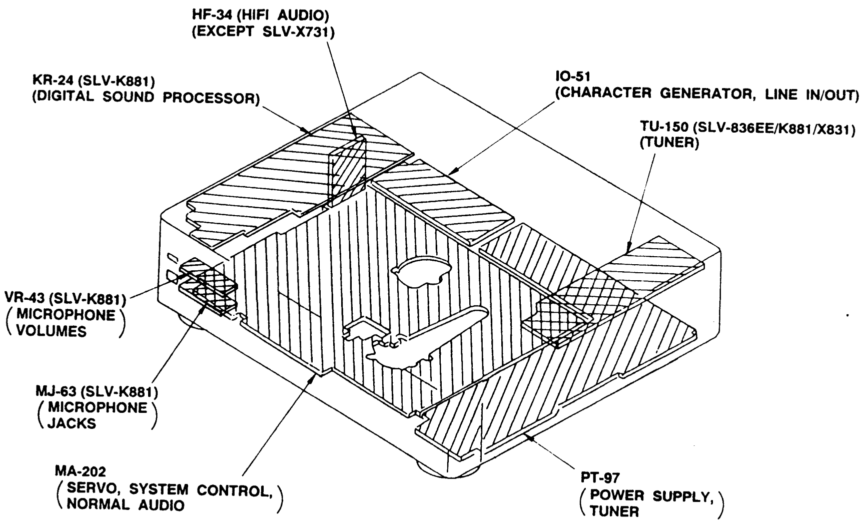
KR-24 (SLV-K881)
(DIGITAL SOUND

VR-43 (SLV-K881)
(MICROPHONE)
VOLUMES

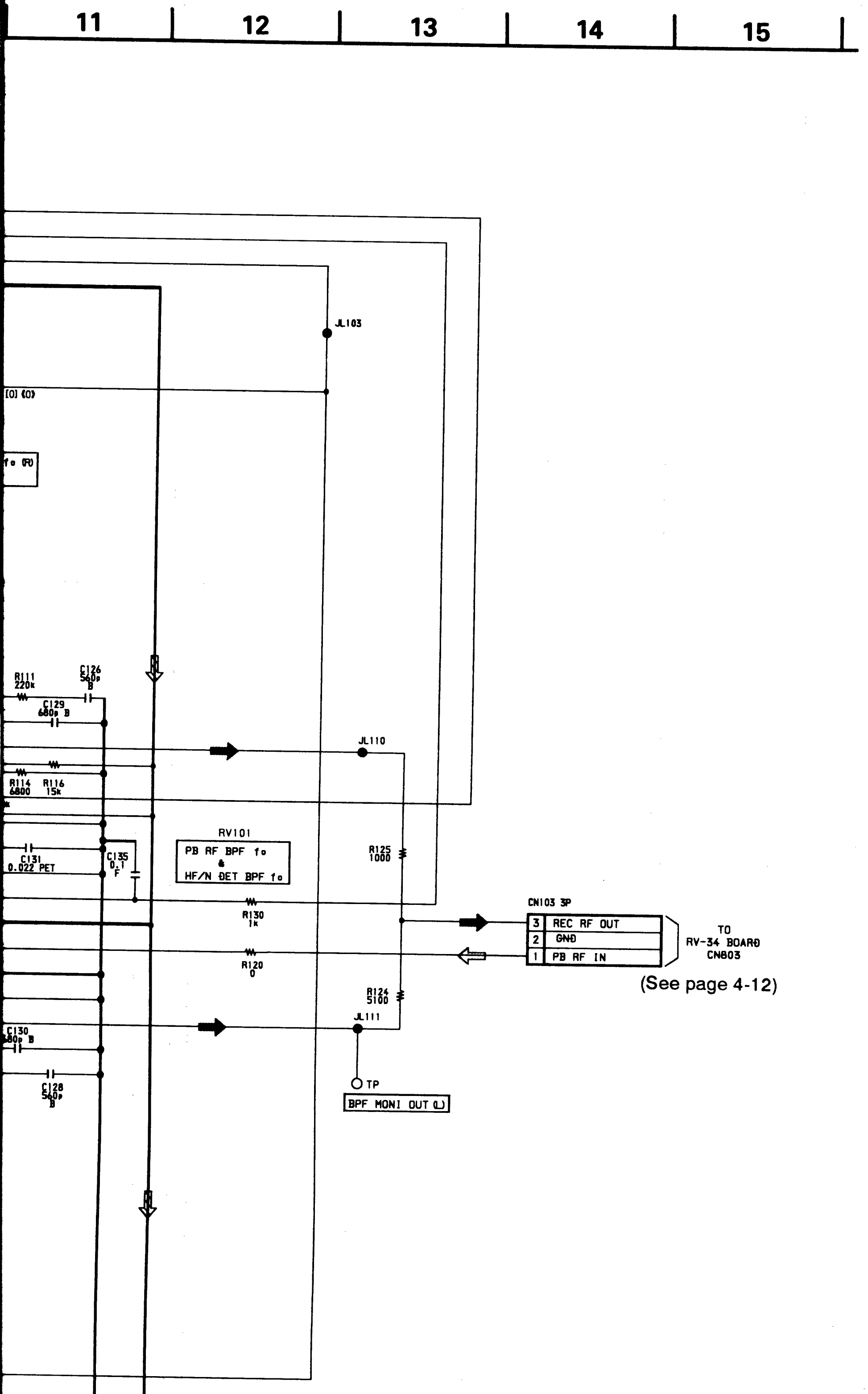
MJ-63 (SLV-K881
(MICROPHONE
JACKS

MA-202
(SERVO, SYS
NORMAL A


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
HF-34 BOARD (SLV-X821/X831/736EE/836EE/K881 ONLY)
CN101 11P
CONT 1 (CLK) 11
CONT 2 (DATA) 10
D.GND 9
AF SWP 8
A MUTE 7
AF ENVE 6
VCC (+5.1V) 5
UNREG 12V 4
GND 3
UNREG -9V 2
VEE (-5.1V) 1
JL101
JL102
JL104
JL105
JL123
JL124
TO
MA-202 BOARD
CN406
(See page 4-24)
CN102 11P
LINE OUT (R) 11
GND 10
LINE OUT (L) 9
GND 8
RF CONV OUT 7
LEVEL VR VCC 6
NORMAL IN 5
VR (R) /MAIN. 4
HIFI (R) 3
VR (L) /BAL 2
HIFI (L) 1
JL117
JL118
JL119
JL120
JL121
JL122
TO
MA-202 BOARD
CN405
(See page 4-23)
05
IC101
XLH7776K
IC101
AUDIO PROCESSOR
SERIAL
CTRL
REG
OUTPUT
SW
LINEAMP
MIXAMP
PNR-Rch
PNR-Lch
EMPH
DOC
MODEM
Rch
MODEM
Lch
SHWP
GEN.
FMDET
ENVE
BPF
EVR
ALC
VCC
Q101, 102
SWITCH
Q102
2SD1802
Q101
2SB1122
D101
MA110TX
Q103
UN2213
SWITCH
Q104
UN2213
SWITCH
RV102
VCO fo (R)
1.7M (NTSC)
1.8M (PAL)
RV104
MULTI VCO fo (R)
1.8M
RV103
VCO fo (L)
1.3M (NTSC)
1.4M (PAL)
RV105
MULTI VCO fo (L)
1.4M
RV1
PB RF BPF
HF/N DET
R103 27k
R107 27k
R109 12k
R108 12k
R106 47k
R105 47k
R115 6800
R110 2200
R118 2.2M
R111 220k
R112 220k
R114 6800
R116 15k
R113 330k
R101 10k
R102 13k
R104 22k
R123 0
C133 1500p
C134 1500p
C115 100 10V
C116 100 10V
C117 33 16V
C107 47 10V
C112 22 25V
C113 22 25V
C125 560p
C126 560p
C127 560p
C128 560p
C129 680p
C130 680p
C131 0.022 PET
C132 0.022 PET
C124 1000p PET
C114 0.33 50V
C135 0.1 F
JL112
JL125
JL113
JL114
JL115
JL116
JL106
JL107
JL108
JL109


HF-34 (HIFI AUDIO) (EXCEPT SLV-X731)
KR-24 (SLV-K881) (DIGITAL SOUND PROCESSOR)
IO-51 (CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831) (TUNER)
VR-43 (SLV-K881) (MICROPHONE VOLUMES)
MJ-63 (SLV-K881) (MICROPHONE JACKS)
MA-202 (SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97 (POWER SUPPLY, TUNER)

22


11
12
13
14
15
JL103
R111 220k
C126 560p B
C129 680p B
R114 6800
R116 15k
C131 0.022 PET
C135 0.1 F
RV101
PB RF BPF fo & HF/N DET BPF fo
JL110
R125 1000
R130 1k
R120 0
R124 5100
JL111
C130 680p B
C128 560p B
CN103 3P
3 REC RF OUT
2 GND
1 PB RF IN
TO RV-34 BOARD CN803
(See page 4-12)
TP
BPF MONI OUT (L)

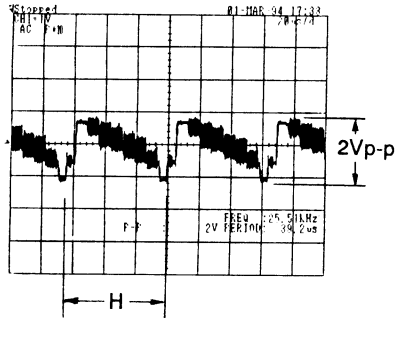
·No Mark: (PAL REC)
·( ) : (PAL PB)
·[ ] : (NTSC REC)
·« » : (NTSC PB)

- Signal path

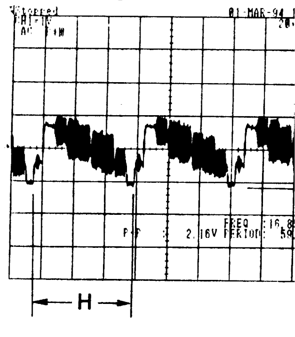
	AUDIO SIGNAL
REC	➡
PB	⇨

IO-51 BOARD (1/2)

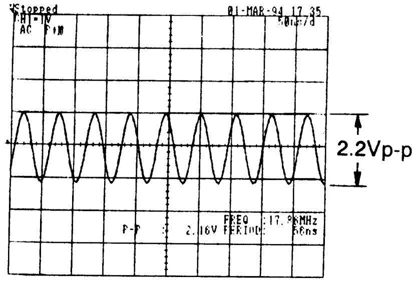
❶ IC601③ PAL REC



❶ IC601③ PAL PB

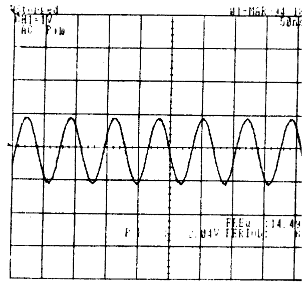


❷ IC601⑧ PAL REC/PB



17MHz

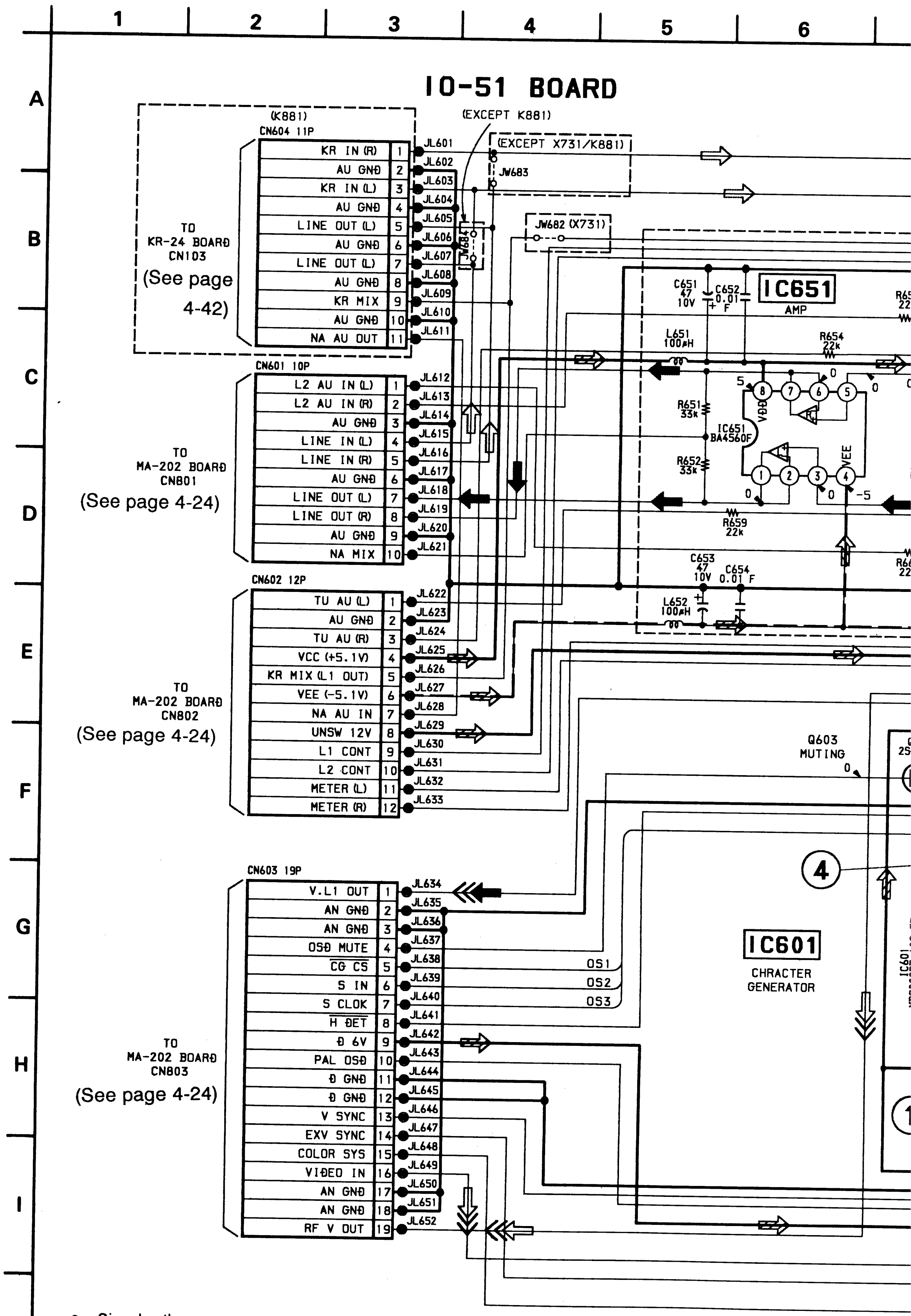
❷ IC601⑧ NTSC REC/PB



14MHz

IO-51 (CHARACTER GENERATOR, LINE IN/OUT) SCHEMATIC DIAGRAM

– Ref. No.: IO-51 Board; 4,000 series –

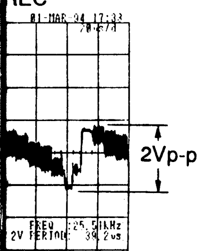

1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
IO-51 BOARD
(K881)
CN604 11P
KR IN (R)
AU GND
KR IN (L)
AU GND
LINE OUT (L)
AU GND
LINE OUT (L)
AU GND
KR MIX
AU GND
NA AU OUT
TO KR-24 BOARD CN103
(See page 4-42)
(EXCEPT K881)
(EXCEPT X731/K881)
JW683
JW682 (X731)
JW684
CN601 10P
L2 AU IN (L)
L2 AU IN (R)
AU GND
LINE IN (L)
LINE IN (R)
AU GND
LINE OUT (L)
LINE OUT (R)
AU GND
NA MIX
TO MA-202 BOARD CN801
(See page 4-24)
CN602 12P
TU AU (L)
AU GND
TU AU (R)
VCC (+5.1V)
KR MIX (L1 OUT)
VEE (-5.1V)
NA AU IN
UNSW 12V
L1 CONT
L2 CONT
METER (L)
METER (R)
TO MA-202 BOARD CN802
(See page 4-24)
CN603 19P
V.L1 OUT
AN GND
AN GND
OSD MUTE
CG CS
S IN
S CLOK
H DET
D 6V
PAL OSD
D GND
D GND
V SYNC
EXV SYNC
COLOR SYS
VIDEO IN
AN GND
AN GND
RF V OUT
TO MA-202 BOARD CN803
(See page 4-24)
JL601 … JL652
IC651
AMP
C651 47 10V
C652 0.01 F
L651 100μH
R654 22k
R651 33k
R652 33k
IC651 BA4560F
VDD
VEE
R659 22k
C653 47 10V
C654 0.01 F
L652 100μH
Q603 MUTING
④
IC601
CHRACTER GENERATOR
OS1
OS2
OS3

- Signal path

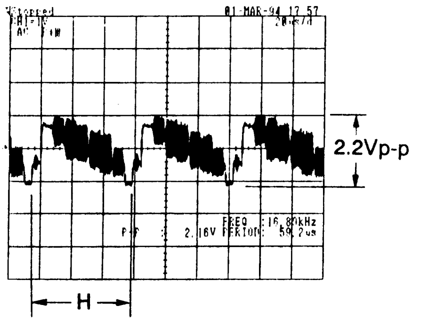
	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
REC	➡≫	➡
PB	⇨≫	⇨

/2)

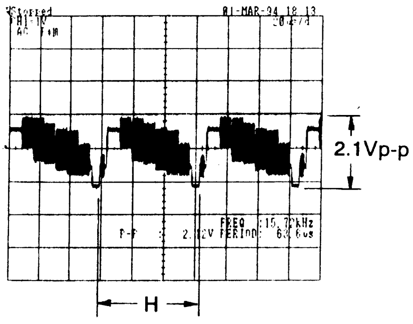
REC



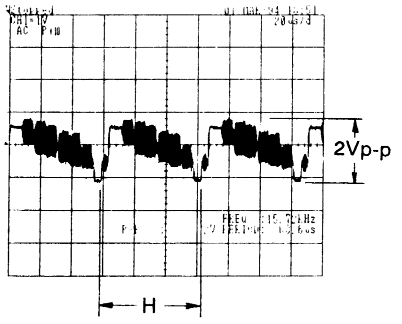
❶ IC601③ PAL PB



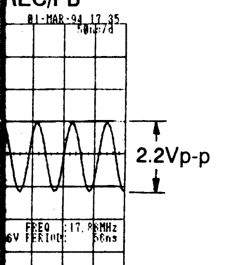
❶ IC601③ NTSC REC



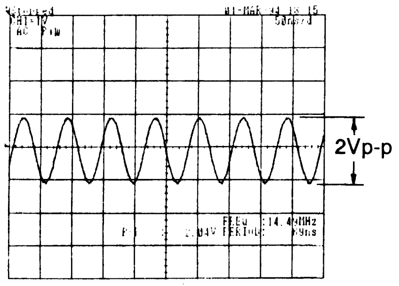
❶ IC601③ NTSC PB



REC/PB

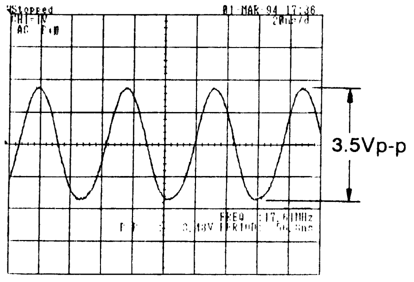


❷ IC601⑧ NTSC REC/PB



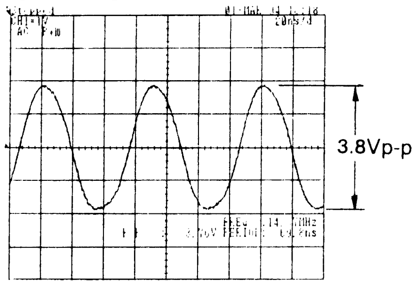
14MHz

❸ IC601⑨ PAL REC/PB



17MHz

❸ IC601⑨ NTSC REC/PB

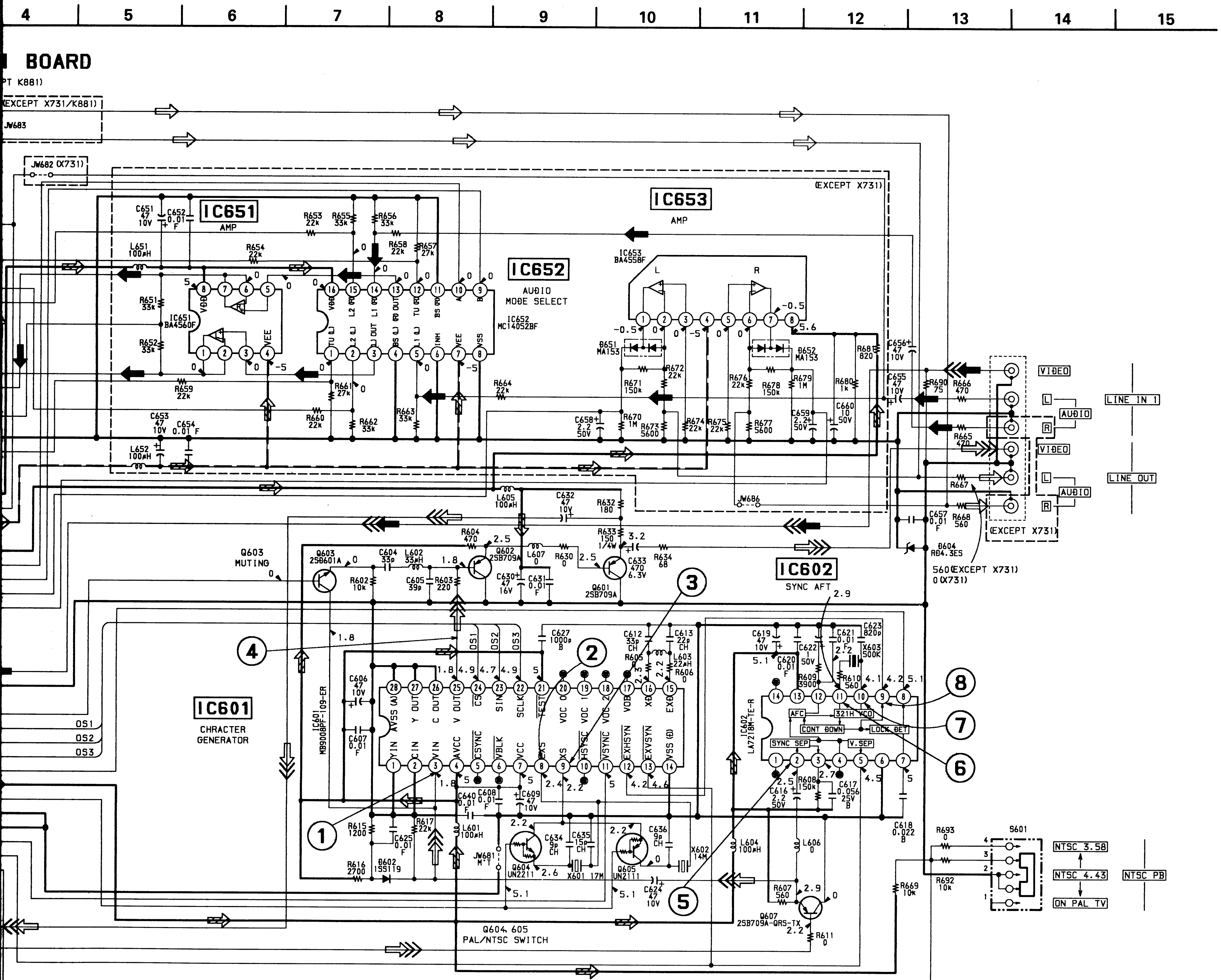


14MHz

) SCHEMATIC DIAGRAM

BOARD

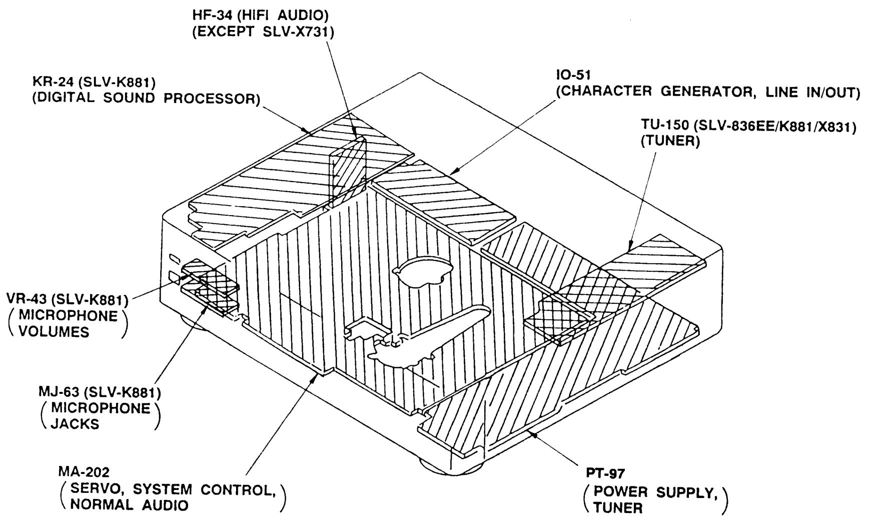
T K881)


4
5
6
7
8
9
10
11
12
13
14
15
EXCEPT X731/K881)
JW683
JW682 (X731)
(EXCEPT X731)
IC651
AMP
IC651 BA4560F
IC652
AUDIO MODE SELECT
IC652 MC14052BF
IC653
AMP
IC653 BA4558F
D651 MA153
D652 MA153
VIDEO
L
R
AUDIO
LINE IN 1
LINE OUT
(EXCEPT X731)
D604 RD4.3ES
560(EXCEPT X731)
0(X731)
Q603 MUTING
Q603 2SB601A
Q602 2SB709A
Q601 2SB709A
IC602
SYNC AFT
IC602 LA7218M-TE-R
AFC
321H VCO
CONT DOWN
LOCK DET
SYNC SEP
V.SEP
IC601
CHRACTER GENERATOR
IC601 MB90086PF-109-ER
OS1
OS2
OS3
Q604 UN2211
Q605 UN2111
X601 17M
X602 14M
Q604, 605 PAL/NTSC SWITCH
Q607 2SB709A-QRS-TX
S601
NTSC 3.58
NTSC 4.43
NTSC PB
ON PAL TV
①
②
③
④
⑤
⑥
⑦
⑧

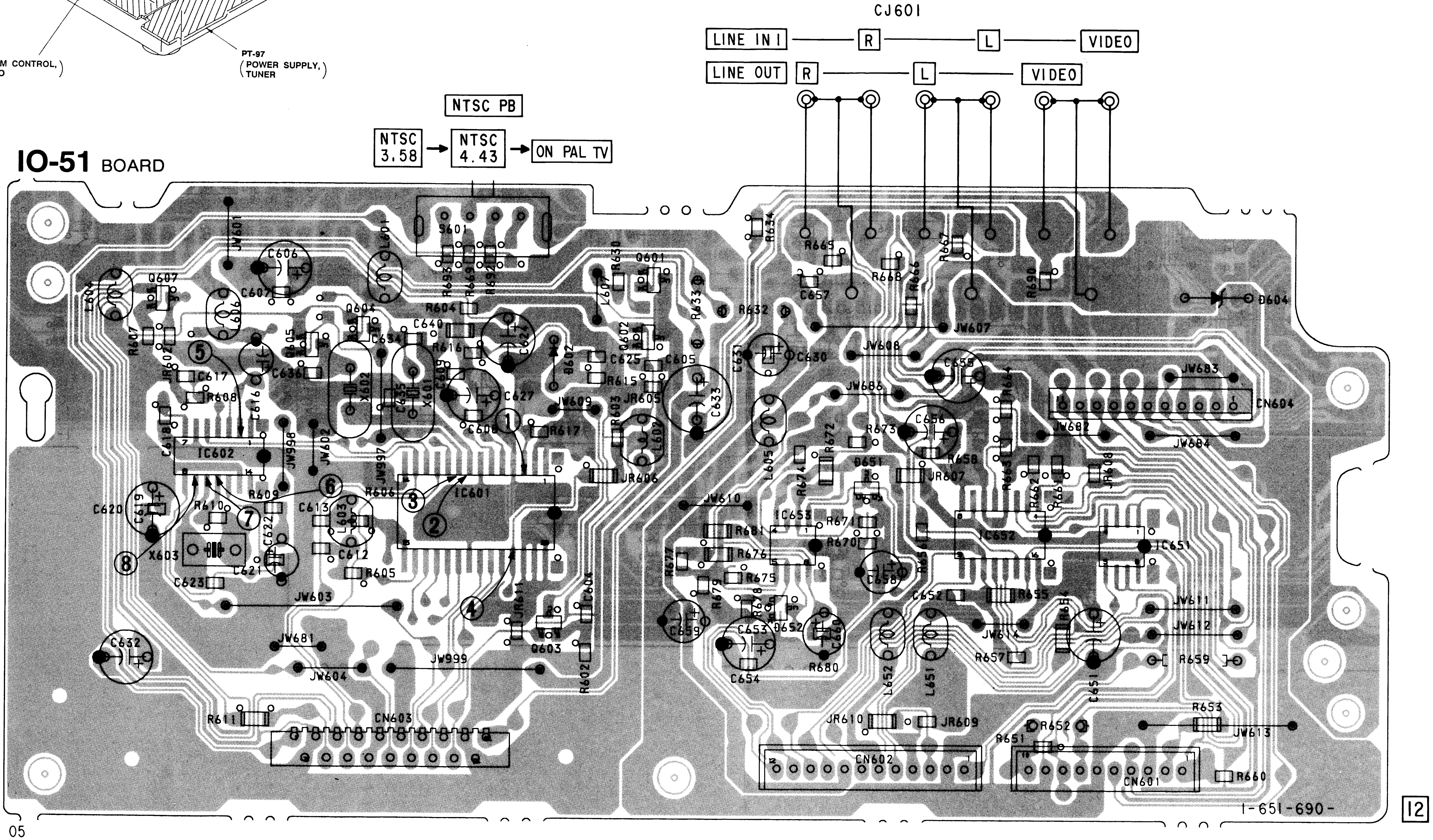
No Mark : (COMMON)

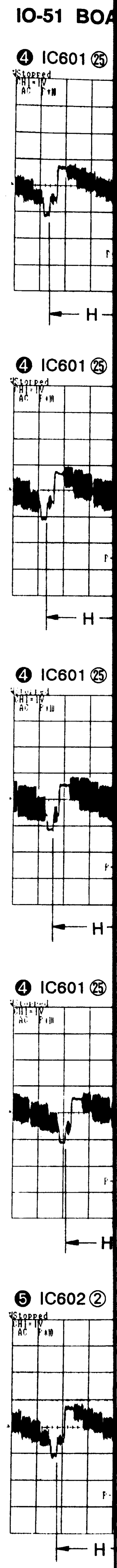
IO-51 (CHARACTER GENERATOR, LINE IN/OUT) PRINTED WIRING BOARD

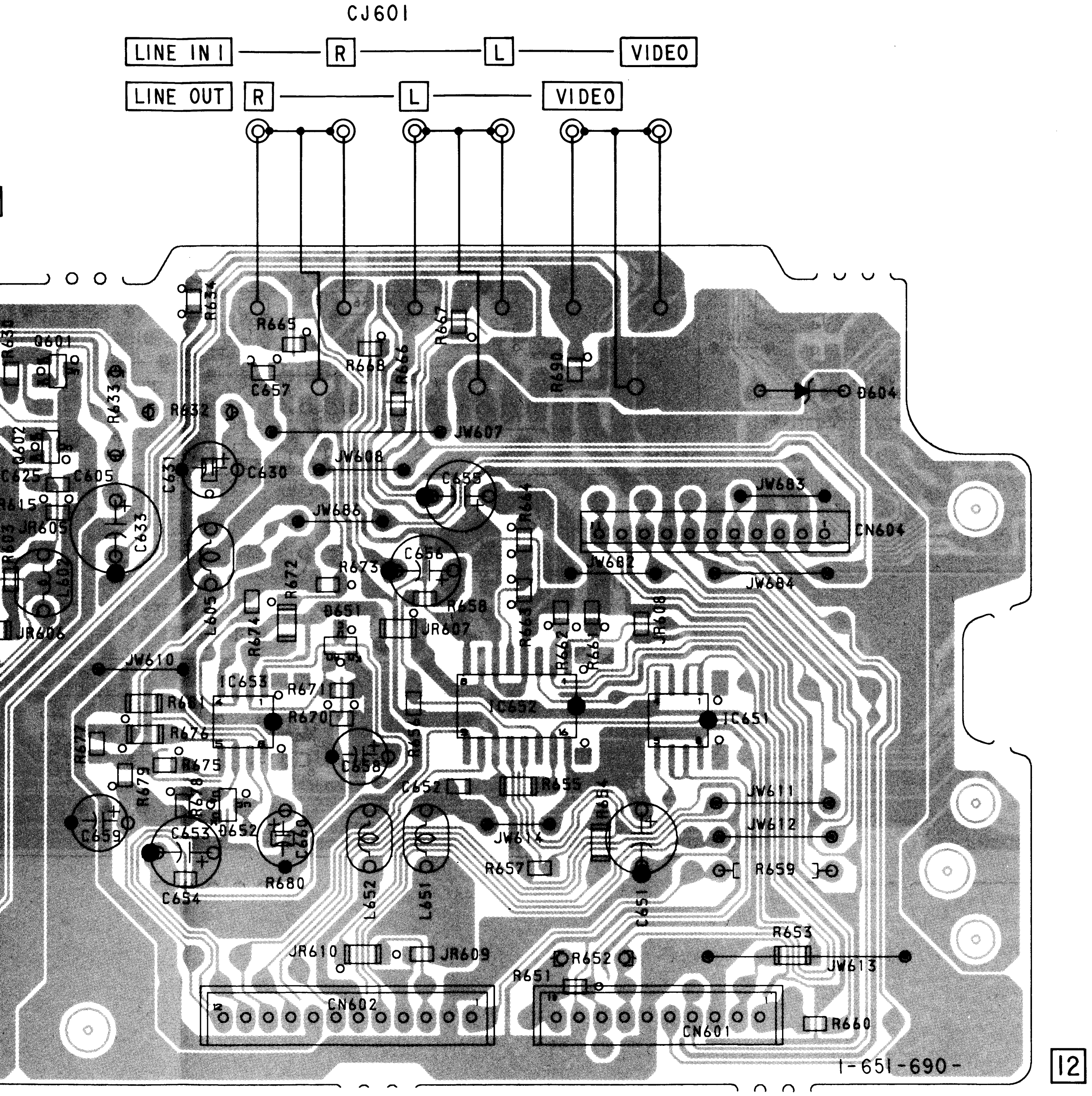
– Ref. No.: IO-51 Board; 4,000 series –


HF-34 (HIFI AUDIO)
(EXCEPT SLV-X731)
KR-24 (SLV-K881)
(DIGITAL SOUND PROCESSOR)
IO-51
(CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831)
(TUNER)
VR-43 (SLV-K881)
(MICROPHONE VOLUMES)
MJ-63 (SLV-K881)
(MICROPHONE JACKS)
MA-202
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97
(POWER SUPPLY, TUNER)

IO-51 BOARD

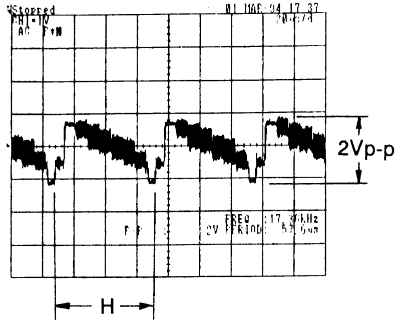

CJ601
LINE IN I
R
L
VIDEO
LINE OUT
R
L
VIDEO
NTSC PB
NTSC 3.58
NTSC 4.43
ON PAL TV
S601
IC601
IC602
IC651
IC652
IC653
Q601
Q602
Q603
Q604
Q607
Q651
Q652
X601
X602
X603
D602
D604
CN601
CN602
CN603
CN604
JW601
JW602
JW603
JW604
JW607
JW608
JW609
JW610
JW611
JW612
JW613
JW614
JW681
JW682
JW683
JW684
JW686
JW997
JW998
JW999
JR605
JR606
JR607
JR608
JR609
JR610
JR611
L601
L602
L603
L604
L605
L606
L607
L608
L609
L651
L652
C606
C607
C612
C613
C617
C618
C619
C620
C621
C622
C623
C624
C625
C627
C630
C631
C632
C633
C634
C636
C640
C652
C653
C654
C656
C657
C658
C659
C660
R602
R604
R605
R606
R607
R608
R609
R610
R611
R615
R616
R617
R630
R632
R633
R634
R652
R653
R655
R657
R659
R660
R665
R666
R667
R668
R670
R671
R672
R673
R674
R675
R676
R680
R681
R690
①
②
③
④
⑤
⑥
⑦
⑧
1-651-690-
12
05



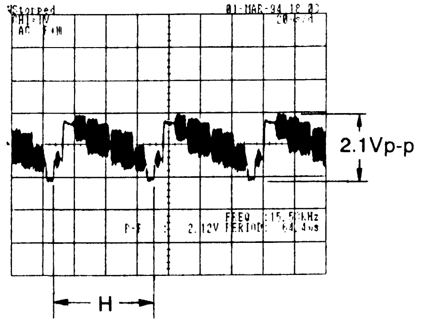

CJ601
LINE IN I
R
L
VIDEO
LINE OUT
R
L
VIDEO
Q601
R634
R665
R667
R668
R666
R690
C657
R632
R633
JW607
JW608
C630
C655
JW686
C605
C633
JW683
CN604
C656
R673
R672
JW682
JW684
D651
R658
JR607
L605
R674
JW610
IC653
R671
R670
R681
R676
IC652
IC651
R675
C658
C652
R655
R679
C659
C653
Q652
C660
JW611
JW612
JW614
R657
R659
C654
R680
L652
L651
L653
R653
JW613
JR610
JR609
R652
R651
CN602
CN601
R660
D604
1-651-690-
12

IO-51 BOARD (2/2)

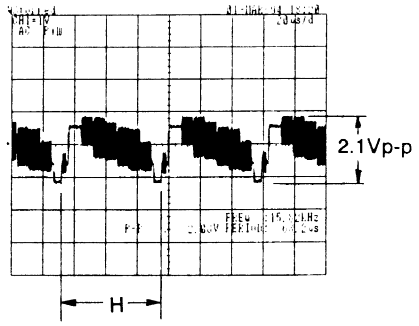
❹ IC601 ㉕ PAL REC



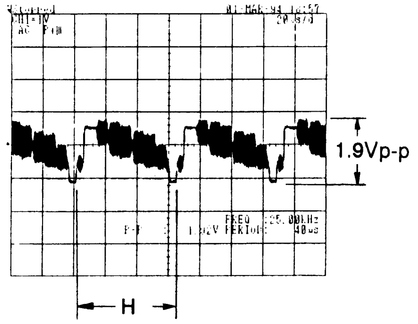
❹ IC601 ㉕ PAL PB



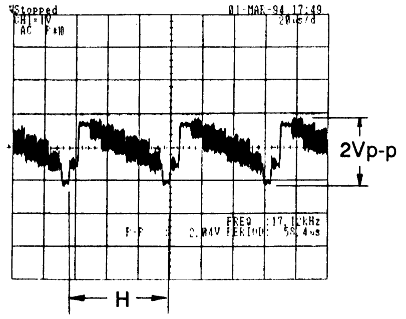
❹ IC601 ㉕ NTSC REC



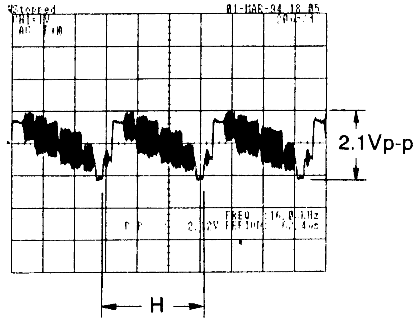
❹ IC601 ㉕ NTSC PB



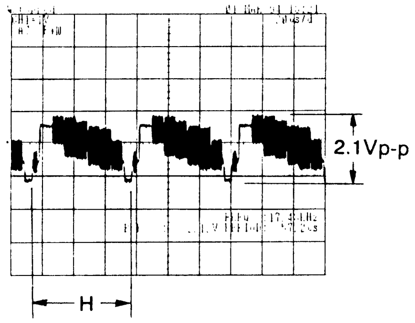
❺ IC602 ② PAL REC



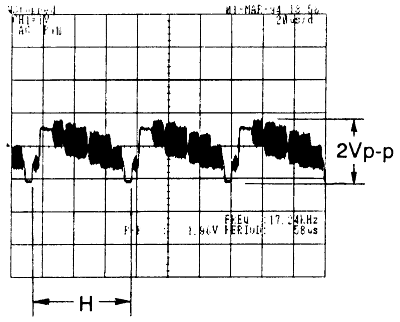
❺ IC602 ② PAL PB



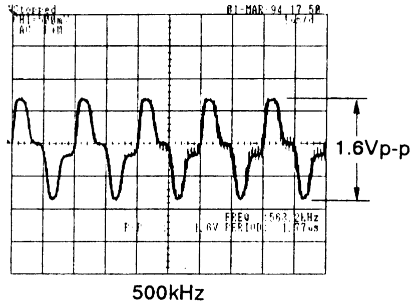
❺ IC602 ② NTSC REC



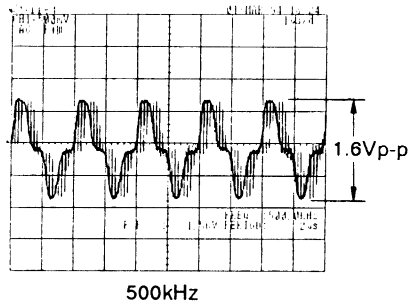
❺ IC602 ② NTSC PB



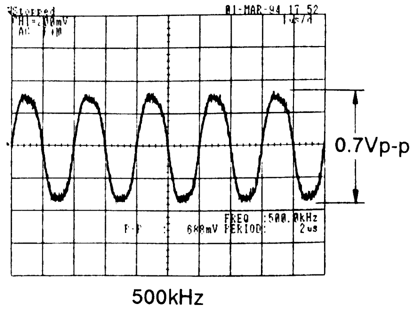
❻ IC602 ⑪ PAL REC



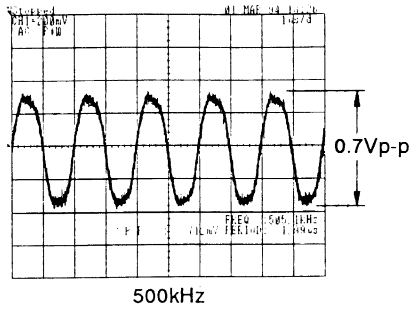
❻ IC602 ⑪ NTSC REC/PB



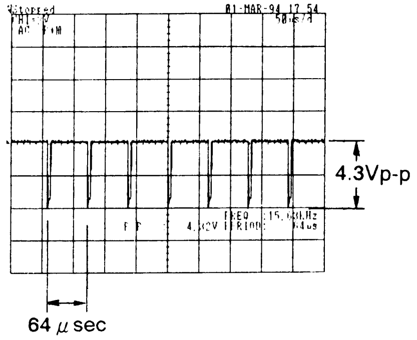
❼ IC602 ⑩ PAL REC/PB



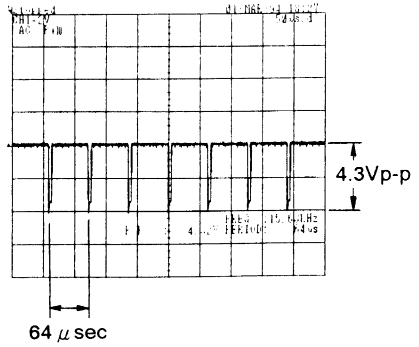
❼ IC602 ⑩ NTSC REC/PB



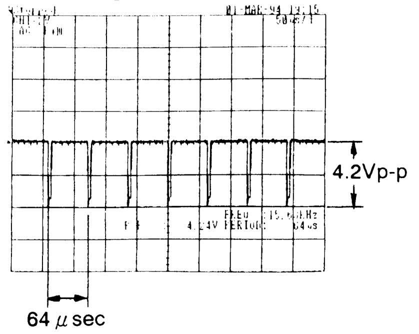
❽ IC602 ⑨ PAL REC/PB

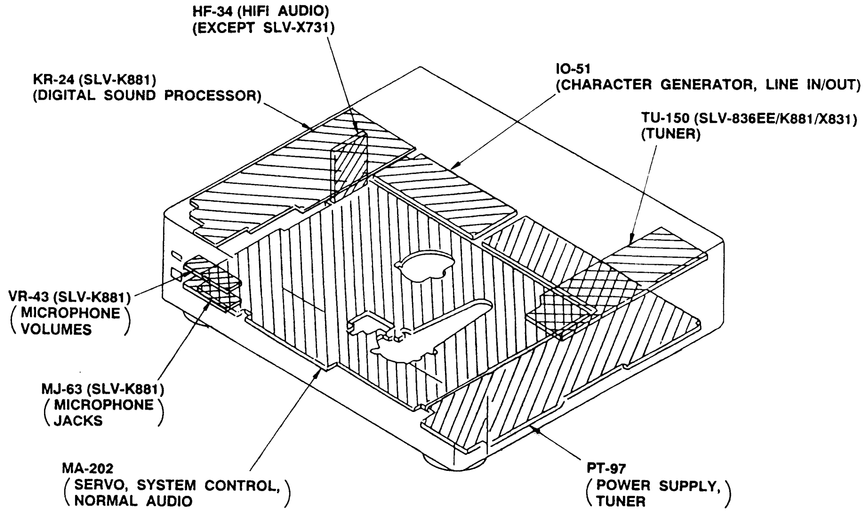


❽ IC602 ⑨ NTSC REC



❽ IC602 ⑨ NTSC PB

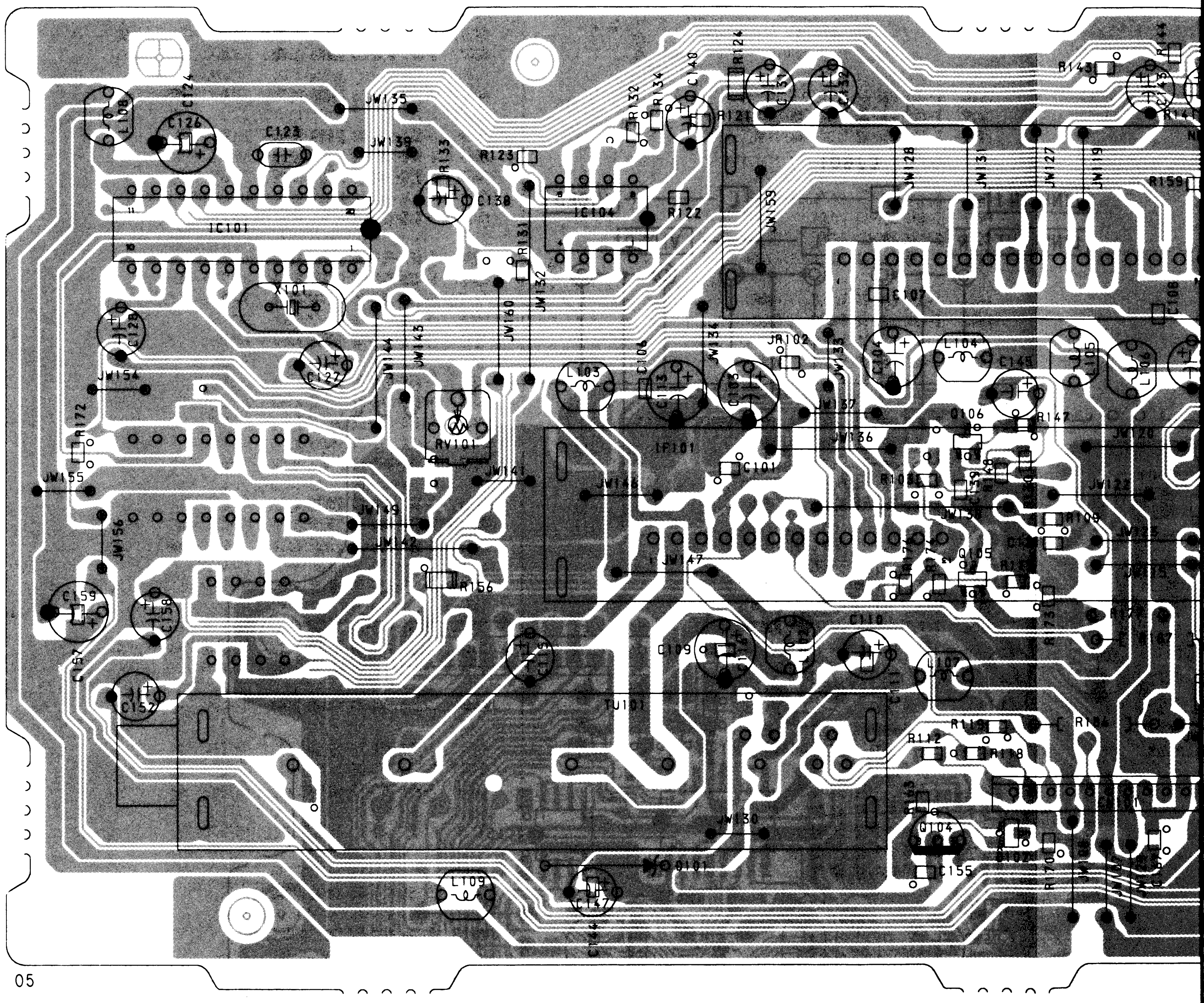



HF-34 (HIFI AUDIO)
(EXCEPT SLV-X731)
KR-24 (SLV-K881)
(DIGITAL SOUND PROCESSOR)
IO-51
(CHARACTER GENERATOR, LINE IN/OUT)
TU-150 (SLV-836EE/K881/X831)
(TUNER)
VR-43 (SLV-K881)
(MICROPHONE VOLUMES)
MJ-63 (SLV-K881)
(MICROPHONE JACKS)
MA-202
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PT-97
(POWER SUPPLY, TUNER)

TU-150 (TUNER) PRINTED WIRING BOARD

– Ref. No.: TU-150 Board; 7,000 series –

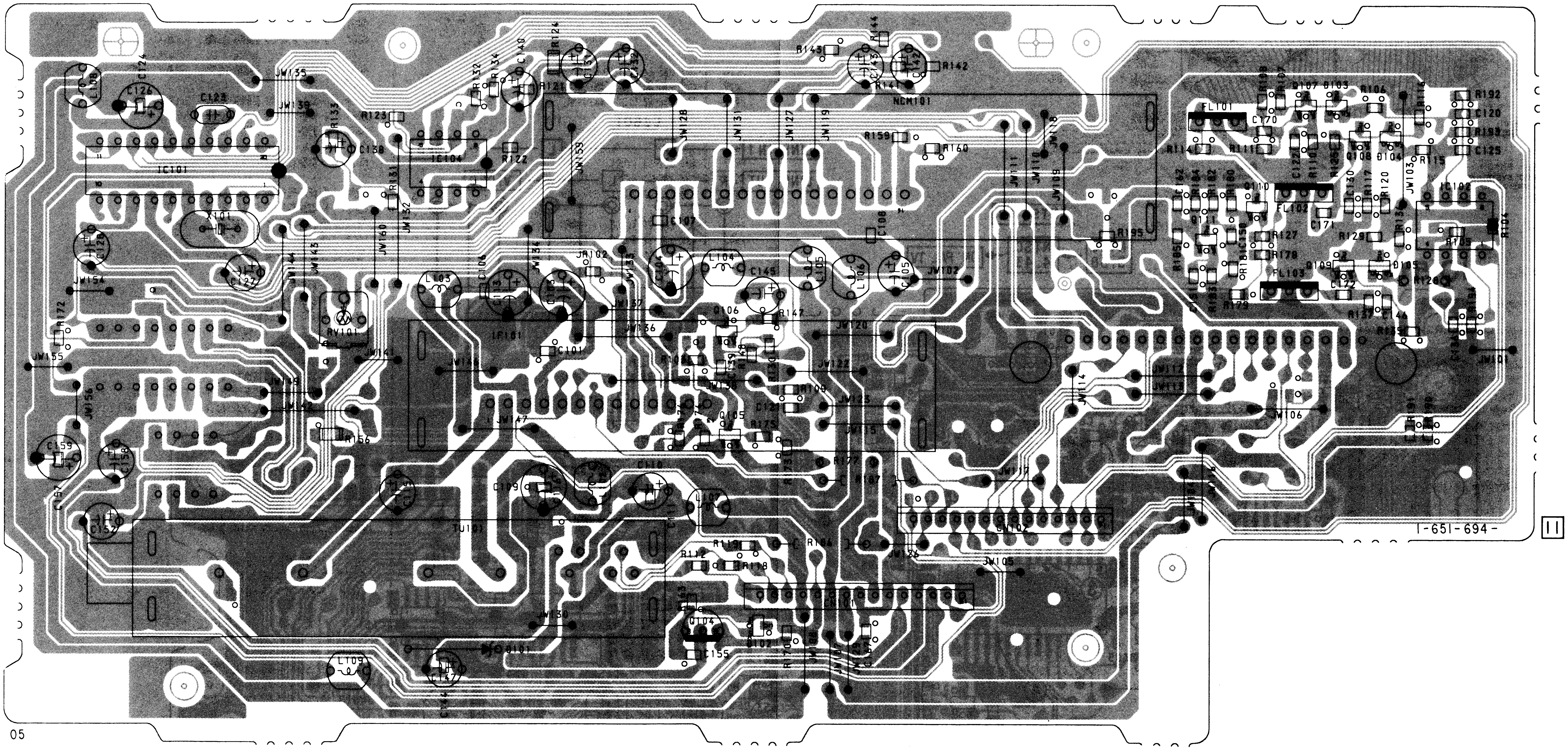
TU-150 BOARD


IC101
IC104
X101
C123
C124
C126
C128
C127
C138
C140
R121
R122
R123
R124
R131
R132
R133
R134
JW135
JW139
JW154
JW155
JW156
JW160
JW144
JW143
JW134
JW153
JW128
JW131
JW127
JW119
R172
RV101
L103
L104
IF101
Q106
Q105
Q104
C145
C159
C158
C157
C152
C155
TU101
D101
L109
C147
C144
L102
R112
R115
R118
R156
JR102
C107
JW130
JW141
JW142
JW145
JW147
JW136
JW137
JW122
05

TU-150 (TUNER) PRINTED WIRING BOARD

– Ref. No.: TU-150 Board; 7,000 series –

TU-150 BOARD


IC101
IC102
IC103
IC104
IC105
IC107
CN101
CN102
TU101
NCM101
FL101
FL102
FL103
IF101
RV101
X101
L103
L104
L105
L106
L108
L109
C124
C125
C126
C127
C128
C138
C140
C145
C155
C157
C158
C159
R122
R123
R133
R141
R142
R143
R144
R147
R156
R159
R160
R172
R192
R195
JW101
JW102
JW105
JW106
JW135
JW139
JW154
JW155
Q104
Q105
Q106
Q107
Q108
Q109
Q110
D101
1-651-694-
11
05

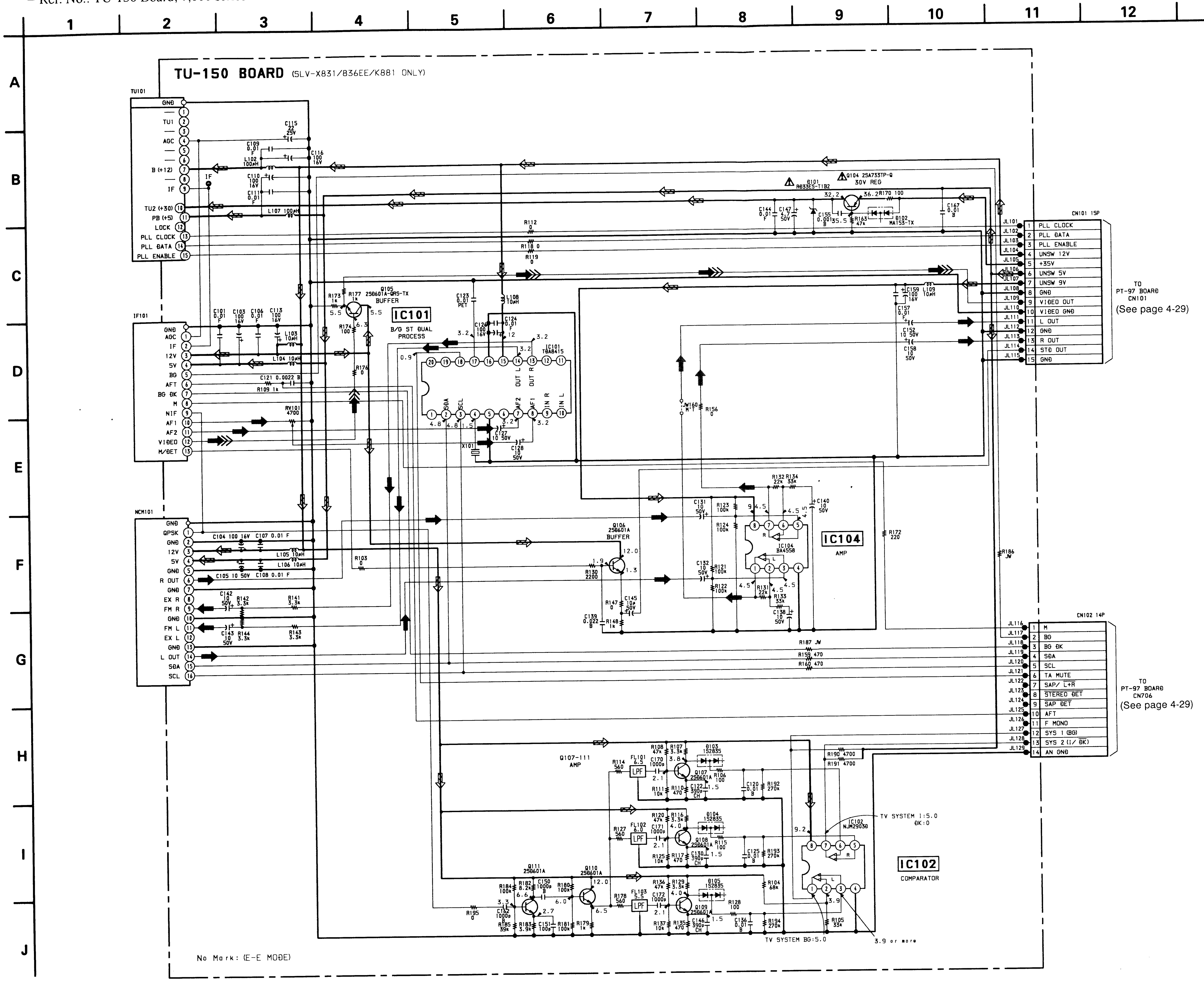
RATOR, LINE IN/OUT)

LV-836EE/K881/X831)

Y,)

TU-150 (TUNER) SCHEMATIC DIAGRAM

– Ref. No.: TU-150 Board; 7,000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
TU-150 BOARD (SLV-X831/836EE/K881 ONLY)
TU101
GND
TU1
AGC
B (+12)
IF
TU2 (+30)
PB (+5)
LOCK
PLL CLOCK
PLL DATA
PLL ENABLE
IF101
GND
AGC
IF
12V
5V
BG
AFT
BG DK
M
NIF
AF1
AF2
VIDEO
M/DET
MCM101
GND
QPSK
GND
12V
5V
GND
R OUT
GND
EX R
FM R
GND
FM L
EX L
GND
L OUT
SDA
SCL
IC101
B/G ST DUAL PROCESS
IC101 TBA8415
Q105 2SD601A-QRS-TX BUFFER
Q104 2SA733TP-Q 30V REG
D101 RD33ES-T1B2
D102 MA153-TX
Q106 2SD601A BUFFER
IC104
IC104 BA4558
AMP
IC102
IC102 NJM2903D
COMPARATOR
TV SYSTEM I:5.0 DK:0
TV SYSTEM BG:5.0
3.9 or more
Q107-111 AMP
Q107 2SD601A
Q108 2SD601A
Q109 2SD601A
Q110 2SD601A
Q111 2SD601A
D103 1SS355
D104 1SS355
D105 1SS355
FL101 6.5
FL102 6.0
FL103 5.5
LPF
X101
CN101 15P
PLL CLOCK
PLL DATA
PLL ENABLE
UNSW 12V
+35V
UNSW 5V
UNSW 9V
GND
VIDEO OUT
VIDEO GND
L OUT
GND
R OUT
STD OUT
GND
TO PT-97 BOARD CN101
(See page 4-29)
CN102 14P
M
BG
BG DK
SDA
SCL
TA MUTE
SAP/ L+R
STEREO DET
SAP DET
AFT
F MONO
SYS 1 (BG)
SYS 2 (I/ DK)
AN GND
TO PT-97 BOARD CN706
(See page 4-29)
No Mark : (E-E MODE)

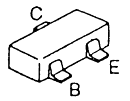
- Signal path

	VIDEO SIGNAL Y/CHROMA	AUDIO SIGNAL
REC	➡»	➡
PB	⇨»	⇨

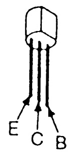
05

4-3. SEMICONDUCTORS

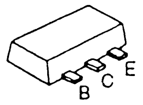
DTC114TK-T146
DTC144EK
DTA114EK
DTA144WK
MSD601-RT1
UN211L
UN2111
UN2113
UN221L
UN2211
UN2213
2SA1162-G
2SA1162Y-TE85L
2SC1623-L5L6
2SD1048-X7
2SC2712-YG
2SD1048-X7
2SD601A-Q



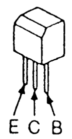
2SA733-K



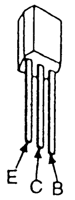
2SB1122-S
2SD1834



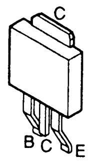
2SB733-34
2SD773-34



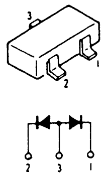
2SC4040-TL2-Q



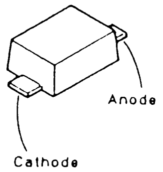
2SD1802FA-S



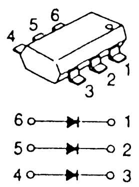
DAP202K
MA152WA
1S2836



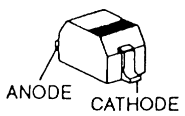
DTZ30C-TT11
02DZ6.2-TPH3


Anode
Cathode

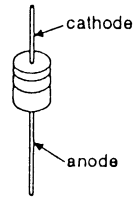
IMN10


4
5
6
3
2
1
6
1
5
2
4
3

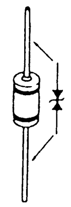
MA110


ANODE
CATHODE

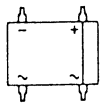
RD33ES-B2
RD4.3ES-B1
RD4.7ES-B2
RD5.1ES-B2
RD6.2ES-B2
RD6.8ES-B1
RD6.8ES-B2
1SS119
1SS133
11ES2


cathode
anode

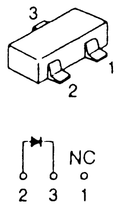
RD9.1E-W



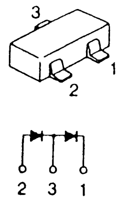
S1WB60



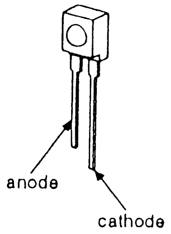
DAN202K
1SS184



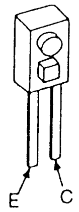
1SS226



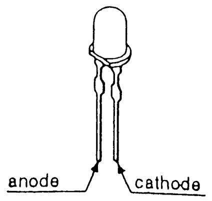
GL451VS1


anode
cathode

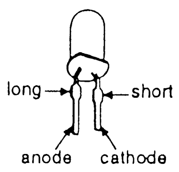
PT483F1S



SLR34DC3
SLR34MC3
SLR34VC3


anode
cathode

TLY123


long
short
anode
cathode

SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

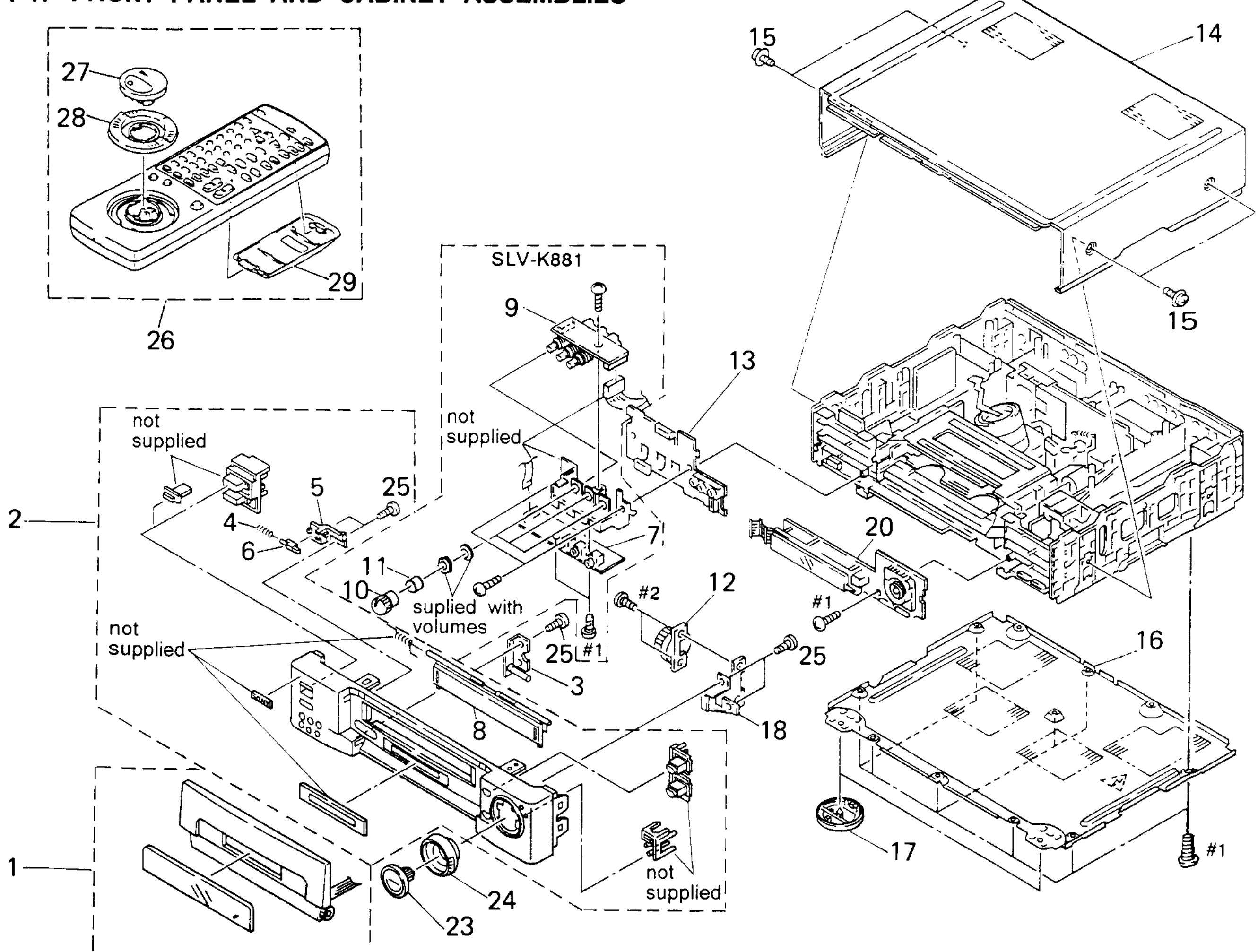
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

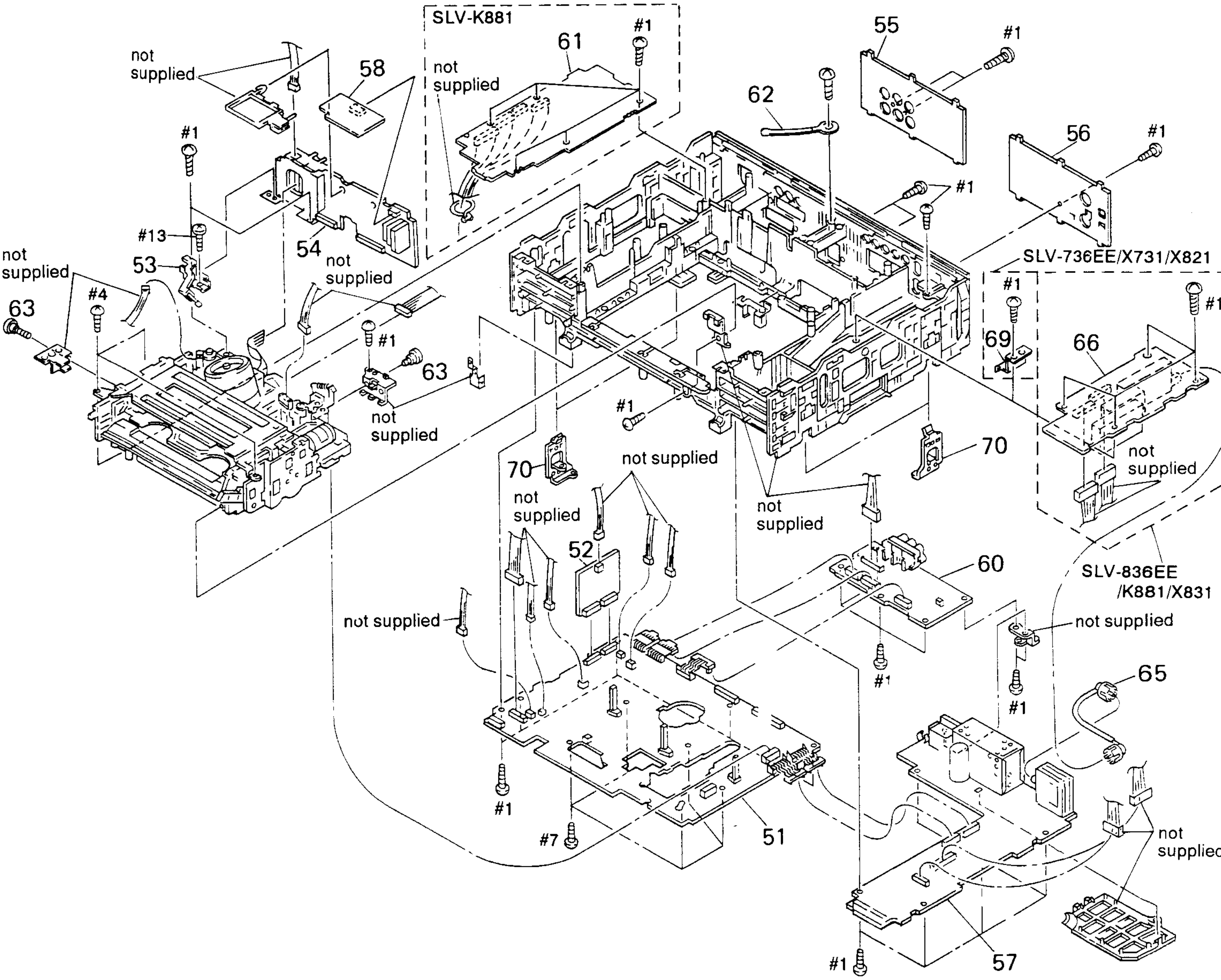
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

5-1-1. FRONT PANEL AND CABINET ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	1-467-611-11	SWITCH BLOCK, CONTROL (K881)	
1	1-467-611-21	SWITCH BLOCK, CONTROL (X831)	
1	1-467-611-31	SWITCH BLOCK, CONTROL (736EE)	
1	1-467-611-41	SWITCH BLOCK, CONTROL (X821)	
1	1-467-611-51	SWITCH BLOCK, CONTROL (X731)	
1	1-467-611-61	SWITCH BLOCK, CONTROL (836EE)	
2	X-3943-737-1	PANEL ASSY, FRONT (K881)	
2	X-3943-760-1	PANEL ASSY, FRONT (X831)	
2	X-3943-761-1	PANEL ASSY, FRONT (836EE)	
2	X-3943-762-1	PANEL ASSY, FRONT (736EE)	
2	X-3943-763-1	PANEL ASSY, FRONT (X821)	
2	X-3943-764-1	PANEL ASSY, FRONT (X731)	
* 3	X-3943-736-1	PLATE, FULCRUM (LEFT) ASSY,	
4	3-957-388-01	SPRING, COMPRESSION	
* 5	3-957-312-11	HOLDER, LOCK CLAW	
6	3-944-564-01	CLAW, LOCK	
* 7	A-6720-622-A	MJ-63 BOARD, COMPLETE (K881)	
8	3-954-128-51	DOOR, CASSETTE (K881/X821/X831)	
8	3-954-128-61	DOOR, CASSETTE (736EE/836EE)	
8	3-954-128-71	DOOR, CASSETTE (X731)	
* 9	A-6720-621-A	VR-43 BOARD, COMPLETE (K881)	
10	3-957-948-01	KNOB (GT), VOL (K881)	
11	2-127-723-01	SPRING (KNOB) (K881)	
11	3-712-786-31	DAMPER, OIL	
* 13	A-6720-616-A	MF-245 BOARD, COMPLETE (K881)	
* 13	A-6720-624-A	MF-245 BOARD, COMPLETE (736EE/836EE/X821/X831)	
* 13	A-6720-629-A	MF-245 BOARD, COMPLETE (X731)	
* 14	3-957-938-01	CASE, UPPER	
15	3-710-901-11	SCREW, TAPPING	
* 16	3-957-939-01	PLATE, BOTTOM	
17	3-957-246-01	INSULATOR	
* 18	X-3943-735-1	PLATE, FULCRUM (RIGHT) ASSY,	
* 20	A-6720-617-A	MF-246 BOARD, COMPLETE (K881)	
* 20	A-6720-625-A	MF-246 BOARD, COMPLETE (X831)	
* 20	A-6720-626-A	MF-246 BOARD, COMPLETE (836EE)	
* 20	A-6720-627-A	MF-246 BOARD, COMPLETE (736EE)	
* 20	A-6720-628-A	MF-246 BOARD, COMPLETE (X821)	
* 20	A-6720-630-A	MF-246 BOARD, COMPLETE (X731)	
23	X-3943-591-1	BUTTON ASSY, FUNCTION (736EE/836EE)	
23	X-3943-738-1	BUTTON ASSY, FUNCTION (K881/X731/X821/X831)	
24	X-3943-556-1	RING ASSY, SHUTTLE (736EE/836EE)	
24	X-3943-739-1	RING ASSY, SHUTTLE (K881/X731/X821/X831)	
25	4-921-277-11	SCREW (B2.6X8), TAPPING, BIND	
26	1-467-606-11	REMOTE COMMANDER (RMT-V145) (K881)	
26	1-467-606-21	REMOTE COMMANDER (RMT-V145A) (736EE/836EE/X821/X831)	
26	1-467-606-31	REMOTE COMMANDER (RMT-V145B) (X731)	
27	X-3943-638-1	BUTTON ASSY	
28	3-957-513-11	SHUTTLE RING	
29	3-708-817-01	COVER, BATTERY	

5-1-2. CHASSIS ASSEMBLY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SLV-836EE
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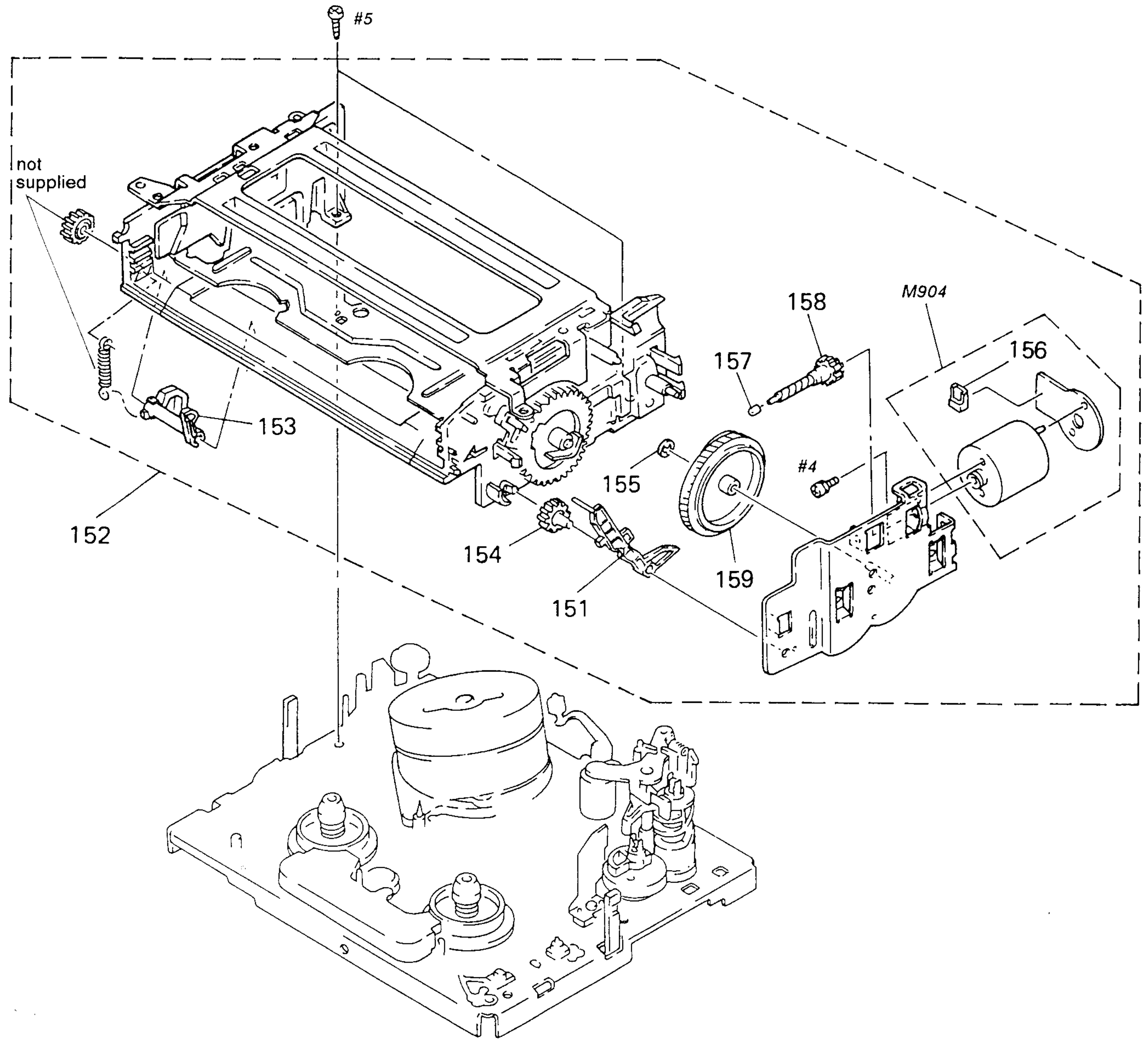
Ref. No.	Part No.	Description	Remark
* 51	A-6782-306-A	MA-202 BOARD, COMPLETE (K881)	
* 51	A-6782-307-A	MA-202 BOARD, COMPLETE (736EE/836EE/X821/X831)	
* 51	A-6782-308-A	MA-202 BOARD, COMPLETE (X731)	
* 52	A-6721-619-A	HF-34 BOARD, COMPLETE (EXCEPT X731)	
53	X-3943-595-1	GROUND ASSY (GT), SHAFT	
* 54	A-6727-565-A	RV-34 BOARD, COMPLETE (EXCEPT X731)	
* 54	A-6727-568-A	RV-34 BOARD, COMPLETE (X731)	
* 55	3-957-940-01	PLATE, JACK (I/O), REAR (EXCEPT X731)	
* 55	3-957-940-11	PLATE, JACK (I/O), REAR (X731)	
* 56	3-957-941-01	PLATE, JACK (TU), REAR (K881)	
* 56	3-957-941-11	PLATE, JACK (TU), REAR (X831)	
* 56	3-957-941-21	PLATE, JACK (TU), REAR (836EE)	
* 56	3-957-941-31	PLATE, JACK (TU), REAR (736EE)	
* 56	3-957-941-41	PLATE, JACK (TU), REAR (X821)	
* 56	3-957-941-51	PLATE, JACK (TU), REAR (X731)	
* 57	A-6727-564-A	PT-97 BOARD, COMPLETE (K881)	

Ref. No.	Part No.	Description	Remark
* 57	A-6727-566-A	PT-97 BOARD, COMPLETE (836EE/X831)	
* 57	A-6727-569-A	PT-97 BOARD, COMPLETE (X731)	
* 57	A-6727-576-A	PT-97 BOARD, COMPLETE (736EE/X821)	
* 58	A-6720-620-A	SK-44 BOARD, COMPLETE	
* 60	A-6754-694-A	IO-51 BOARD, COMPLETE (K881)	
* 60	A-6754-695-A	IO-51 BOARD, COMPLETE (736EE/836EE/X821/X831)	
* 60	A-6754-696-A	IO-51 BOARD, COMPLETE (X731)	
* 61	A-6720-618-A	KR-24 BOARD, COMPLETE (K881)	
62	3-703-150-11	STOPPER, WIRING (EXCEPT K881)	
63	3-736-055-01	SCREW (3X8), TAPPING	
65	1-558-924-21	CABLE, PIN (736EE/X731/X821)	
65	1-558-924-41	CABLE, PIN (836EE/K881/X831)	
* 66	A-6720-623-A	TU-150 BOARD, COMPLETE (836EE/K881/X831)	
* 69	3-959-329-01	HOLDER, TU (736EE/X731/X821)	
* 70	3-957-387-01	STOPPER (GT), UPPER CASE	

5-1-3. FL CASSETTE COMPARTMENT ASSEMBLY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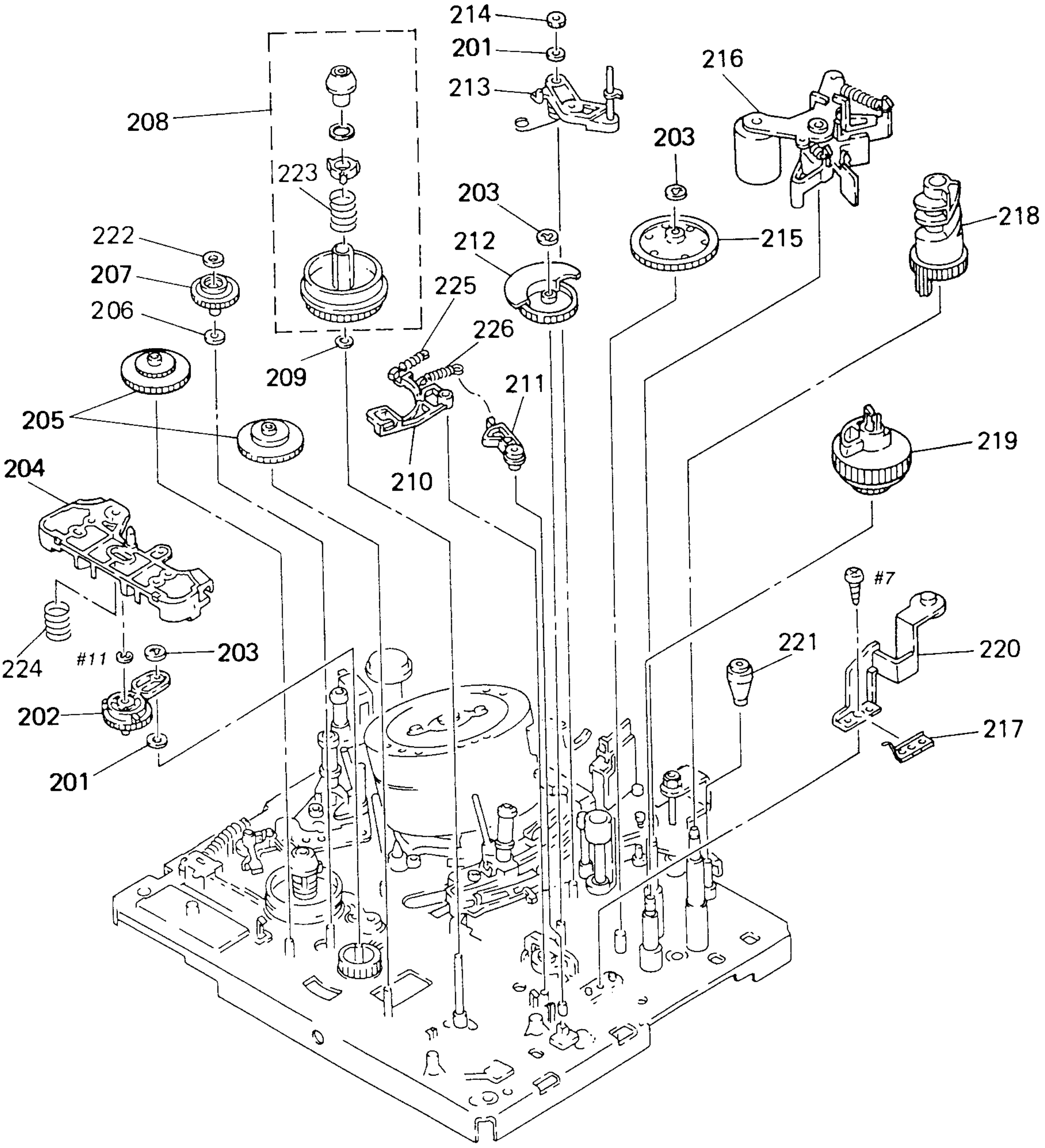
Ref. No.	Part No.	Description	Remark
151	3-741-935-06	LEVER, FLAT DOOR	
152	A-6751-421-A	FL BLOCK ASSY (M2)	
153	3-736-163-01	LEVER, ERASING PROTECTION	
154	X-3727-775-2	GEAR (RIGHT) ASSY, MIDWAY	
155	3-669-595-00	WASHER (2), STOPPER	
156	1-564-413-41	PIN, CONNECTOR 3P	
157	3-716-144-02	RETAINER, WORM	
158	3-736-100-01	GEAR (FL), WORM	
159	3-736-164-01	WHEEL (FL), WORM	
M904	X-3727-784-1	MOTOR ASSY	

5-1-4. MECHANISM CHASSIS ASSEMBLY (1)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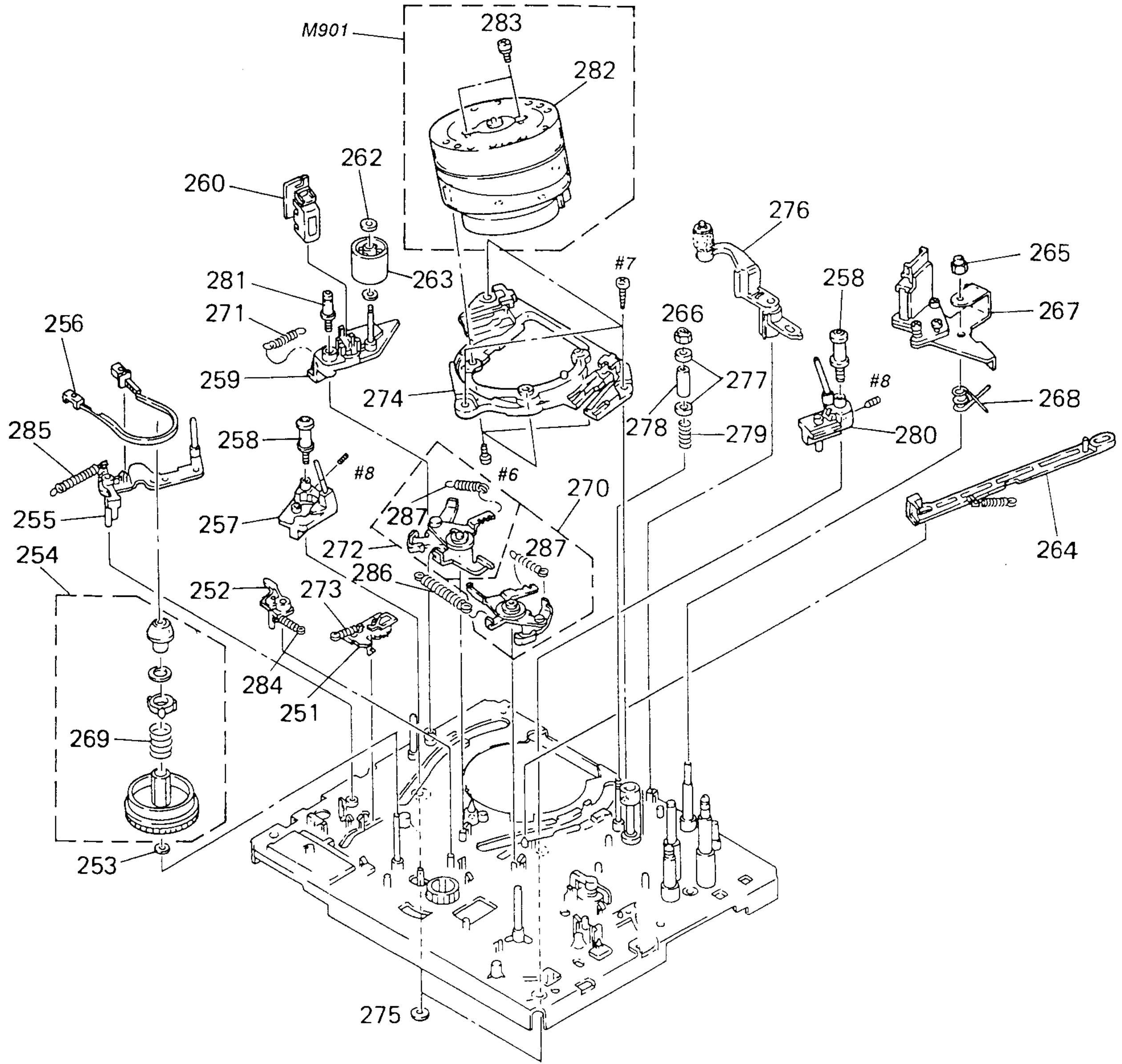
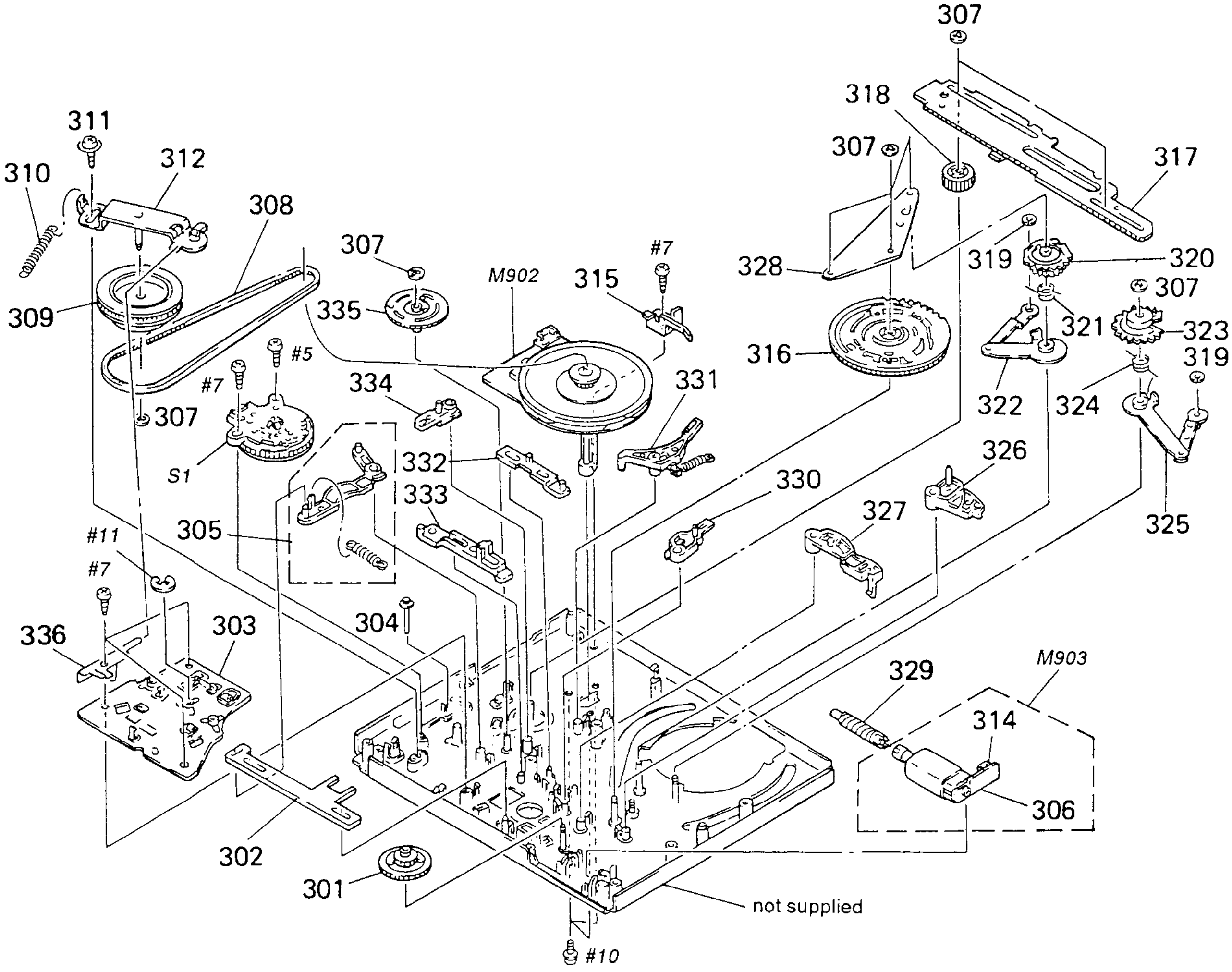
Ref. No.	Part No.	Description	Remark
201	3-701-438-11	WASHER, 2.5	
202	X-3727-776-1	ARM ASSY, PENDULUM	
203	3-669-595-00	WASHER (2), STOPPER	
204	3-736-172-02	RELEASE, LOCK, REEL	
205	X-3727-795-1	GEAR ASSY, RELAY	
206	3-736-074-01	RETAINER (SMALL), THRUST	
207	3-736-037-01	GEAR, REW	
208	X-3727-789-1	TABLE ASSY, REEL	
209	3-738-212-21	RETAINER, THRUST, REEL TABLE	
210	X-3733-335-1	BRAKE ASSY (AT), T SOFT	
211	3-736-105-01	ARM, REV BRAKE	
212	3-736-143-01	GEAR, RVS CAM	
213	X-3942-218-1	ARM ASSY, RVS	
214	3-736-740-01	NUT (M2X0.25), NYLON	
215	3-736-116-01	GEAR, COMMUNICATION	
216	X-3727-770-1	PINCH ROLLER BLOCK ASSY	
217	3-744-227-01	SPRING, FL GROUND	
218	3-952-182-01	CAM, ELEVATOR	
219	3-943-700-01	GEAR, PRESS CAM	
220	3-946-652-01	OPENER, LID	
221	3-738-250-01	SCREW, AC ADJUSTMENT	
222	3-736-069-01	RETAINER, SPRING	
223	3-739-621-01	SPRING, COMPRESSION	
224	3-736-020-11	SPRING, COMPRESSION	
225	3-736-024-01	SPRING, TENSION (FOR T SOFT BRAKE)	
226	3-736-025-01	SPRING, TENSION (REW BRAKE)	

5-1-5. MECHANISM CHASSIS ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark
* 251	A-6759-483-A	TAKE-UP BLOCK ASSY, S	
252	X-3727-773-1	ARM ASSY (S), SOFT BRAKE	
253	3-738-212-21	RETAINER, THRUST, REEL TABLE	
254	X-3941-194-1	TABLE ASSY, REEL, S	
255	X-3727-772-5	ARM ASSY, TENSION REGULATOR	
256	X-3727-797-1	BAND ASSY, TENSION REGULATOR	
257	X-3727-786-1	SHUTTLE (LEFT) ASSY	
258	X-3733-301-1	ROLLER ASSY, GUIDE	
259	X-3942-897-1	BASE ASSY, STABILIZER	
260	1-543-647-11	HEAD, FE	
262	3-741-925-01	RING, RETAINING	
263	3-946-129 01	B STABLIZER	
264	X-3743-517-1	LEVER ASSY, RELEASE, C ROLLER	
265	3-942-867-01	NUT, AC HEIGHT ADJUSTMENT	
266	3-942-866 01	NUT (M3)(3X0.5), NYLON	
267	A-6761-129-C	HEAD BLOCK ASSY, ACE	
268	3 946 148-01	SPRING, TORSION	
269	3-739-621-01	SPRING, COMPRESSION	
270	X-3729-926-1	BRAKE ASSY (2), T	
271	3-736-745-01	SPRING, TENSION	
272	X-3733-336-2	BRAKE ASSY (2)AT, S	
273	3-738-284-01	SPRING, TENSION	
274	X-3727-791-2	DRUM (BASE) ASSY	
275	3-736-073-01	SLIDER, POLYETHYLENE	
276	A-6747-267-A	ARM BLOCK ASSY (S), C ROLLER	
277	3-736-733-02	FLANGE, 7 GUIDE	
278	3-736-730-01	SLEEVE, #7 GUIDE	
279	3-749-099-01	SPRING (#7 GUIDE), COMPRESSION	
280	X-3727-787-1	SHUTTLE (RIGHT) ASSY	
281	X-3727-788-1	ROLLER ASSY, GUIDE, #2	
282	8-848-621-01	DRUM ASSY, ROTARY UPPER (DZR-54-R) (X7 31)	
282	8-848-625-01	DRUM ASSY, ROTARY UPPER (DZR-68-R) (EXCEPT X7 31)	
283	2-643-205-01	SCREW (PSW3X8)	
284	3 736 047 01	SPRING, TENSION (S SOFT)	
285	3-733-389-01	SPRING, TENSION (TENSION REGULATOR AT)	
286	3-738-221-01	SPRING, TENSION (MAIN BRKE 1)	
287	3 738 220 01	SPRING, TENSION (MAIN BRKE 2)	
M901	8-848-618-11	DRUM ASSY (DZH-54A-R)(X731)	
M901	8-848-624-11	DRUM ASSY (DZH-68A-R)(EXCEPT X731)	

5-1-6. MECHANISM CHASSIS ASSEMBLY (3)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Ref. No.	Part No.	Description	Remark
301	3-736-015-01	WHEEL (CAM), WORM	
302	3-736-158-01	PLATE, SLIDE, PENDULUM	
303	A-6739-096-A	CHASSIS BLOCK ASSY, SUB	
304	3-736-091-01	PIN, SWITCH	
305	X-3729-924-1	ARM ASSY, PENDULUM FUNCTION	
* 306	1-633-460-11	CA-41 BOARD	
307	3-669-595-00	WASHER (2), STOPPER	
308	3-736-013-01	BELT, TIMING	
309	X-3727-782-1	PULLEY ASSY	
310	3-736-089-01	SPRING, TENSION	
311	3-749-796-11	SCREW, TAPPING +BVTP WASHER	
312	X-3727-761-1	ARM ASSY, ADJUSTMENT	
314	1-564-013-41	PIN, CONNECTOR 3P	
315	3-736-744-01	RETAINER, ROTOR	
316	3-736-176-01	GEAR, CAM	
317	3-736-177-01	PLATE, SLIDE, MODE	
318	3-733-394-01	GEAR, RVS RELAY	
319	3-736-069-01	RETAINER, SPRING	
320	3-736-148-01	GEAR (RIGHT), THREADING	
321	3-736-092-01	SPRING (RIGHT), TORSION	
322	X-3727-777-1	ARM (RIGHT) ASSY, LOADING	
323	3-736-147-01	GEAR (LEFT), THREADING	
324	3-736-040-01	SPRING (LEFT), TORSION	
325	X-3727-778-1	ARM (LEFT) ASSY, LOADING	
326	3-736-142-01	ARM, TENSION REGULATOR FUNCTION	
327	3-736-140-01	ARM, S TAKE-UP	
328	3-733-396-01	HOLDER, CAM GEAR	
329	3-733-395-01	GEAR (CAM), WORM	
330	3-733-397-01	ARM, BRAKE FUNCTION	
331	X-3727-769-1	BRAKE ASSY, CAP	
332	3-733-398-01	PLATE, SLIDE, BRAKE	
333	3-736-103-01	PLATE, SLIDE, LIMITER	
334	3-736-016-01	ARM, LIMITER FUNCTION	
335	3-736-170-01	GEAR, RKB CAM	
336	3-741-950-01	SPRING PLATE, SC GROUND (AT)	
M902	8-835-489-01	MOTOR, DC U-26K	
M903	X-3733-302-1	MOTOR ASSY, CAM	
S1	1-571-920-11	SWITCH, ROTARY (CAM ENCODER)	

5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description				Remark
*	A-6721-619-A	HF-34 BOARD, COMPLETE (EXCEPT X731)				
		**********************				
		(Ref.No. 6,000Series)				
		< CAPACITOR >				
C101	1-124-907-11	ELECT	10uF	20%	50V	
C102	1-124-907-11	ELECT	10uF	20%	50V	
C103	1-124-927-11	ELECT	4.7uF	20%	100V	
C104	1-124-927-11	ELECT	4.7uF	20%	100V	
C105	1-124-126-00	ELECT	47uF	20%	10V	
C106	1-124-126-00	ELECT	47uF	20%	10V	
C107	1-124-126-00	ELECT	47uF	20%	10V	
C108	1-126-962-11	ELECT	3.3uF	20%	50V	
C109	1-126-962-11	ELECT	3.3uF	20%	50V	
C110	1-126-962-11	ELECT	3.3uF	20%	50V	
C111	1-126-962-11	ELECT	3.3uF	20%	50V	
C112	1-126-233-11	ELECT	22uF	20%	50V	
C113	1-126-233-11	ELECT	22uF	20%	50V	
C114	1-124-252-00	ELECT	0.33uF	20%	50V	
C115	1-124-443-00	ELECT	100uF	20%	10V	
C116	1-124-443-00	ELECT	100uF	20%	10V	
C117	1-104-792-51	ELECT	33uF	20%	16V	
C118	1-137-372-11	FILM	0.022uF	5%	50V	
C119	1-137-372-11	FILM	0.022uF	5%	50V	
C120	1-137-370-11	FILM	0.01uF	5%	50V	
C121	1-137-370-11	FILM	0.01uF	5%	50V	
C122	1-137-367-11	FILM	0.0033uF	5%	50V	
C123	1-137-367-11	FILM	0.0033uF	5%	50V	
C124	1-137-364-11	FILM	0.001uF	5%	50V	
C125	1-163-006-11	CERAMIC CHIP	560PF	10%	50V	
C126	1-163-006-11	CERAMIC CHIP	560PF	10%	50V	
C127	1-163-006-11	CERAMIC CHIP	560PF	10%	50V	
C128	1-163-006-11	CERAMIC CHIP	560PF	10%	50V	
C129	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C130	1-163-007-11	CERAMIC CHIP	680PF	10%	50V	
C131	1-137-372-11	FILM	0.022uF	5%	50V	
C132	1-137-372-11	FILM	0.022uF	5%	50V	
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V	
C134	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V	
C135	1-163-038-00	CERAMIC CHIP	0.1uF		25V	

Ref. No.	Part No.	Description				Remark
		< CONNECTOR >				
* CN101	1-573-825-11	CONNECTOR, BOARD TO BOARD 11P				
* CN102	1-573-825-11	CONNECTOR, BOARD TO BOARD 11P				
* CN103	1-564-013-11	PIN, CONNECTOR 3P				
CN103	1-506-482-11	PIN, CONNECTOR 3P				
		< DIODE >				
D101	8-719-404-46	DIODE MA110				
		< IC >				
IC101	8-759-188-81	IC XLH7776K-E2				
		< TRANSISTOR >				
⚠Q101	8-729-804-41	TRANSISTOR 2SB1122-S				
⚠Q102	8-729-820-68	TRANSISTOR 2SD1802FA-S				
Q103	8-729-421-19	TRANSISTOR UN2213				
Q104	8-729-421-19	TRANSISTOR UN2213				
		< RESISTOR >				
R101	1-216-675-11	METAL CHIP	10K	0.5%	1/10W	
R102	1-216-678-11	METAL CHIP	13K	0.5%	1/10W	
R103	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R104	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R105	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R106	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R107	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R108	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R109	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R110	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R111	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R112	1-216-105-00	METAL CHIP	220K	5%	1/10W	
R113	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R114	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R115	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R116	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R118	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	
R120	1-216-295-00	METAL CHIP	0	5%	1/10W	
R123	1-216-295-00	METAL CHIP	0	5%	1/10W	
R124	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	

Ref. No.	Part No.	Description			Remark
R125	1-216-049-00	METAL CHIP	1K	5%	1/10W
R130	1-216-049-00	METAL CHIP	1K	5%	1/10W

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV101	1-241-764-11	RES, ADJ, CERMET 10K
RV102	1-241-763-11	RES, ADJ, CERMET 4.7K
RV103	1-241-763-11	RES, ADJ, CERMET 4.7K
RV104	1-241-885-11	RES, ADJ, CERMET 470K
RV105	1-241-885-11	RES, ADJ, CERMET 470K

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* A-6754-694-A IO-51 BOARD, COMPLETE (K881)

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* A-6754-695-A IO-51 BOARD, COMPLETE

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(736EE/836EE/X831/X821)

* A-6754-696-A IO-51 BOARD, COMPLETE (X731)

****

(Ref. No. 4,000Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C604	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C605	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C606	1-124-589-11	ELECT	47uF	20%	16V
C607	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C608	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C609	1-124-589-11	ELECT	47uF	20%	16V
C612	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C613	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C616	1-124-257-00	ELECT	2.2uF	20%	50V
C617	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C618	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C619	1-124-589-11	ELECT	47uF	20%	16V
C620	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C621	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C622	1-126-301-11	ELECT	1uF	20%	50V
C623	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C624	1-124-589-11	ELECT	47uF	20%	16V
C625	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C627	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C630	1-124-477-11	ELECT	47uF	20%	25V
C631	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C632	1-124-589-11	ELECT	47uF	20%	16V
C633	1-124-472-11	ELECT	470uF	20%	10V
C634	1-163-092-00	CERAMIC CHIP	9PF	0.25PF	50V
C635	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C636	1-163-092-00	CERAMIC CHIP	9PF	0.25PF	50V
C640	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C651	1-124-589-11	ELECT	47uF	20% (EXCEPT X731)	16V
C652	1-163-031-11	CERAMIC CHIP	0.01uF	(EXCEPT X731)	50V
C653	1-124-589-11	ELECT	47uF	20% (EXCEPT X731)	16V
C654	1-163-031-11	CERAMIC CHIP	0.01uF	(EXCEPT X731)	50V
C655	1-124-589-11	ELECT	47uF	20%	16V
C656	1-124-589-11	ELECT	47uF	20%	16V
C657	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C658	1-124-925-11	ELECT	2.2uF	20% (EXCEPT X731)	100V
C659	1-124-925-11	ELECT	2.2uF	20% (EXCEPT X731)	100V
C660	1-124-907-11	ELECT	10uF	20% (EXCEPT X731)	50V

< JACK >

Ref. No.	Part No.	Description	Remark
CJ601	1-565-320-71	JACK, PIN 6P (LINE IN/OUT)	(EXCEPT X731)
CJ601	1-568-185-21	JACK, PIN 4P (LINE IN/OUT)	(X731)

< CONNECTOR >

Ref. No.	Part No.	Description
* CN601	1-691-407-11	CONNECTOR, BOARD TO BOARD 10P
CN602	1-568-672-11	CONNECTOR, BOARD TO BOARD 12P
CN603	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P
CN604	1-506-476-11	PIN, CONNECTOR 11P (K881)
CN604	1-568-788-21	PIN, CONNECTOR 11P (K881)

< DIODE >

Ref. No.	Part No.	Description	
D602	8-719-911-19	DIODE	1SS119
D604	8-719-109-74	DIODE	RD4.3ES-B1
D651	8-719-800-76	DIODE	1SS226 (EXCEPT X731)
D652	8-719-800-76	DIODE	1SS226 (EXCEPT X731)

< IC >

Ref. No.	Part No.	Description	
IC601	8-759-255-24	IC	MB90089PF-109-ER
IC602	8-759-164-09	IC	LA7218M-TE-R
IC651	8-759-924-46	IC	BA4560F (EXCEPT X731)
IC652	8-759-009-06	IC	MC14052BF (EXCEPT X731)
IC653	8-759-909-71	IC	BA4558F (EXCEPT X731)

< JUMPER RESISTOR >

Ref. No.	Part No.	Description			Remark
JR602	1-216-295-00	METAL CHIP	0	5%	1/10W
JR605	1-216-295-00	METAL CHIP	0	5%	1/10W
JR606	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR607	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR608	1-216-295-00	METAL CHIP	0	5%	1/10W
JR609	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description	Remark
JR610	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR611	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L601	1-414-189-31	INDUCTOR 100uH	
L602	1-408-609-41	INDUCTOR 33uH	
L603	1-408-413-00	INDUCTOR 22uH	
L604	1-414-189-31	INDUCTOR 100uH	
L605	1-414-189-31	INDUCTOR 100uH	
L651	1-414-189-31	INDUCTOR 100uH	(EXCEPT X731)
L652	1-414-189-31	INDUCTOR 100uH	(EXCEPT X731)
		< TRANSISTOR >	
Q601	8-729-216-22	TRANSISTOR 2SA1162-G	
Q602	8-729-216-22	TRANSISTOR 2SA1162-G	
Q603	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q604	8-729-421-22	TRANSISTOR UN2211	
Q605	8-729-424-08	TRANSISTOR UN2111	
Q607	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
R602	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R603	1-216-033-00	METAL CHIP 220 5% 1/10W	
R604	1-216-041-00	METAL CHIP 470 5% 1/10W	
R605	1-216-295-00	METAL CHIP 0 5% 1/10W	
R606	1-216-295-00	METAL CHIP 0 5% 1/10W	
R607	1-216-043-00	METAL CHIP 560 5% 1/10W	
R608	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R609	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R610	1-216-043-00	METAL CHIP 560 5% 1/10W	
R611	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R615	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R616	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R617	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R630	1-216-295-00	METAL CHIP 0 5% 1/10W	
R632	1-249-408-11	CARBON 180 5% 1/4W	F
R633	1-247-811-31	CARBON 150 5% 1/4W	
R634	1-216-021-00	METAL CHIP 68 5% 1/10W	
R651	1-216-085-00	METAL CHIP 33K 5% 1/10W	(EXCEPT X731)
R652	1-249-435-11	CARBON 33K 5% 1/4W	(EXCEPT X731)
R653	1-216-230-00	METAL GLAZE 22K 5% 1/8W	(EXCEPT X731)
R654	1-216-230-00	METAL GLAZE 22K 5% 1/8W	(EXCEPT X731)
R655	1-216-234-00	METAL GLAZE 33K 5% 1/8W	(EXCEPT X731)
R656	1-216-085-00	METAL CHIP 33K 5% 1/10W	(EXCEPT X731)
R657	1-216-083-00	METAL CHIP 27K 5% 1/10W	(EXCEPT X731)
R658	1-216-081-00	METAL CHIP 22K 5% 1/10W	(EXCEPT X731)
R659	1-249-433-11	CARBON 22K 5% 1/4W	(EXCEPT X731)
R660	1-216-081-00	METAL CHIP 22K 5% 1/10W	(EXCEPT X731)
R661	1-216-083-00	METAL CHIP 27K 5% 1/10W	(EXCEPT X731)
R662	1-216-085-00	METAL CHIP 33K 5% 1/10W	(EXCEPT X731)
R663	1-216-085-00	METAL CHIP 33K 5% 1/10W	(EXCEPT X731)
R664	1-216-081-00	METAL CHIP 22K 5% 1/10W	(EXCEPT X731)
R665	1-216-041-00	METAL CHIP 470 5% 1/10W	
R666	1-216-041-00	METAL CHIP 470 5% 1/10W	
R667	1-216-043-00	METAL CHIP 560 5% 1/10W	(EXCEPT X731)
R667	1-216-295-00	METAL CHIP 0 5% 1/10W(X731)	
R668	1-216-043-00	METAL CHIP 560 5% 1/10W	
R669	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R670	1-216-121-00	METAL CHIP 1M 5% 1/10W	(EXCEPT X731)
R671	1-216-101-00	METAL CHIP 150K 5% 1/10W	(EXCEPT X731)
R672	1-216-230-00	METAL GLAZE 22K 5% 1/8W	(EXCEPT X731)
R673	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	(EXCEPT X731)
R674	1-216-081-00	METAL CHIP 22K 5% 1/10W	(EXCEPT X731)
R675	1-216-081-00	METAL CHIP 22K 5% 1/10W	(EXCEPT X731)
R676	1-216-230-00	METAL GLAZE 22K 5% 1/8W	(EXCEPT X731)
R677	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	(EXCEPT X731)
R678	1-216-101-00	METAL CHIP 150K 5% 1/10W	(EXCEPT X731)
R679	1-216-121-00	METAL CHIP 1M 5% 1/10W	(EXCEPT X731)
R680	1-216-049-00	METAL CHIP 1K 5% 1/10W	(EXCEPT X731)
R681	1-216-196-00	METAL GLAZE 820 5% 1/8W	(EXCEPT X731)
R690	1-216-022-00	METAL CHIP 75 5% 1/10W	

Ref. No.	Part No.	Description			Remark
R692	1-216-073-00	METAL CHIP	10K	5%	1/10W
R693	1-216-295-00	METAL CHIP	0	5%	1/10W

< SWITCH >

Ref. No.	Part No.	Description
S601	1-692-686-11	SWITCH, SLIDE (NTSC PB)

< VIBRATOR >

Ref. No.	Part No.	Description
X601	1-577-289-11	VIBRATOR, CRYSTAL (17MHz)
X602	1-577-381-11	VIBRATOR, CRYSTAL (14MHz)
X603	1-577-165-11	VIBLATOR, CERAMIC (500KHz)

`*****************************************************************`

* A-6720-618-A KR-24 BOARD, COMPLETE (K881)

`**********************`

(Ref. No. 8,000Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C101	1-124-925-11	ELECT	2.2uF	20%	100V
C102	1-124-925-11	ELECT	2.2uF	20%	100V
C107	1-126-233-11	ELECT	22uF	20%	50V
C108	1-126-233-11	ELECT	22uF	20%	50V
C109	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C110	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C130	1-124-907-11	ELECT	10uF	20%	50V
C151	1-126-233-11	ELECT	22uF	20%	50V
C152	1-126-233-11	ELECT	22uF	20%	50V
C201	1-126-101-11	ELECT	100uF	20%	16V
C202	1-126-233-11	ELECT	22uF	20%	50V
C204	1-124-907-11	ELECT	10uF	20%	50V
C205	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C206	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C207	1-126-233-11	ELECT	22uF	20%	50V
C208	1-126-233-11	ELECT	22uF	20%	50V
C209	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C210	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C211	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C212	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C213	1-126-101-11	ELECT	100uF	20%	16V
C214	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C215	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C216	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C217	1-126-233-11	ELECT	22uF	20%	50V
C218	1-164-064-11	CERAMIC	56PF	5%	50V
C222	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C223	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C224	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C225	1-126-101-11	ELECT	100uF	20%	16V
C226	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C227	1-126-101-11	ELECT	100uF	20%	16V
C228	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C229	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C230	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C231	1-126-233-11	ELECT	22uF	20%	50V
C232	1-126-233-11	ELECT	22uF	20%	50V
C233	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C234	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C241	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C252	1-126-233-11	ELECT	22uF	20%	50V
C254	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C255	1-126-233-11	ELECT	22uF	20%	50V
C256	1-126-233-11	ELECT	22uF	20%	50V
C259	1-124-925-11	ELECT	2.2uF	20%	100V
C260	1-126-233-11	ELECT	22uF	20%	50V
C261	1-126-233-11	ELECT	22uF	20%	50V
C262	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C263	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C264	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C265	1-126-233-11	ELECT	22uF	20%	50V
C266	1-126-233-11	ELECT	22uF	20%	50V
C267	1-126-233-11	ELECT	22uF	20%	50V
C268	1-124-925-11	ELECT	2.2uF	20%	100V
C269	1-124-925-11	ELECT	2.2uF	20%	100V
C271	1-124-478-11	ELECT	100uF	20%	25V
C272	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C273	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C301	1-126-233-11	ELECT	22uF	20%	50V
C302	1-126-233-11	ELECT	22uF	20%	50V
C303	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C304	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C305	1-124-925-11	ELECT	2.2uF	20%	100V
C306	1-124-925-11	ELECT	2.2uF	20%	100V
C307	1-124-925-11	ELECT	2.2uF	20%	100V
C308	1-124-925-11	ELECT	2.2uF	20%	100V
C309	1-124-907-11	ELECT	10uF	20%	50V
C310	1-126-233-11	ELECT	22uF	20%	50V
C311	1-126-233-11	ELECT	22uF	20%	50V
C312	1-126-233-11	ELECT	22uF	20%	50V
C313	1-126-233-11	ELECT	22uF	20%	50V
C314	1-124-907-11	ELECT	10uF	20%	50V
C319	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C322	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C324	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C350	1-124-925-11	ELECT	2.2uF	20%	100V
C351	1-124-925-11	ELECT	2.2uF	20%	100V
C352	1-124-925-11	ELECT	2.2uF	20%	100V
C353	1-124-902-00	ELECT	0.47uF	20%	50V
C354	1-124-464-11	ELECT	0.22uF	20%	50V

Ref. No.	Part No.	Description			Remark
C355	1-126-233-11	ELECT	22uF	20%	50V
C356	1-124-464-11	ELECT	0.22uF	20%	50V
C362	1-124-907-11	ELECT	10uF	20%	50V
C363	1-124-907-11	ELECT	10uF	20%	50V
C364	1-124-907-11	ELECT	10uF	20%	50V
C365	1-124-907-11	ELECT	10uF	20%	50V
C401	1-124-907-11	ELECT	10uF	20%	50V
C402	1-124-907-11	ELECT	10uF	20%	50V
C403	1-124-907-11	ELECT	10uF	20%	50V
C404	1-124-907-11	ELECT	10uF	20%	50V
C405	1-124-907-11	ELECT	10uF	20%	50V
C410	1-124-925-11	ELECT	2.2uF	20%	100V
C411	1-124-925-11	ELECT	2.2uF	20%	100V
C423	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C424	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C425	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C426	1-163-031-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description
CN101	1-506-476-11	PIN, CONNECTOR 11P
CN103	1-506-476-11	PIN, CONNECTOR 11P
CN104	1-506-479-11	PIN, CONNECTOR 14P
* CN105	1-695-821-11	CONNECTOR, BOARD TO BOARD 12P

< DIODE >

Ref. No.	Part No.	Description	
D201	8-719-200-82	DIODE	11ES2
D202	8-719-017-09	DIODE	02DZ6.2-TPH3
⚠D203	8-719-200-82	DIODE	11ES2
D204	8-719-200-82	DIODE	11ES2
D205	8-719-017-09	DIODE	02DZ6.2-TPH3
D206	8-719-017-09	DIODE	02DZ6.2-TPH3
D207	8-719-017-09	DIODE	02DZ6.2-TPH3
D253	8-719-800-76	DIODE	1SS226
D255	8-719-800-76	DIODE	1SS226
D257	8-719-800-76	DIODE	1SS226
D301	8-719-800-76	DIODE	1SS226
D302	8-719-109-85	DIODE	RD5.1ES-B2
D422	8-719-914-43	DIODE	DAN202K

< FILTER >

Ref. No.	Part No.	Description
FL201	1-236-071-11	ENCAPSULATED COMPONENT
FL203	1-236-071-11	ENCAPSULATED COMPONENT
FL301	1-239-201-11	FILTER, LOW PASS
FL302	1-239-201-11	FILTER, LOW PASS

< IC >

Ref. No.	Part No.	Description	
IC101	8-759-909-71	IC	BA4558F
IC201	8-752-851-93	IC	CXP50112-441Q
IC202	8-759-075-34	IC	LC83015
IC203	8-759-190-18	IC	LM3346G-12
IC204	8-759-177-10	IC	LC8390M
IC205	8-759-177-10	IC	LC8390M
IC251	8-759-909-71	IC	BA4558F
IC252	8-759-909-71	IC	BA4558F
IC301	8-759-909-71	IC	BA4558F
IC302	8-759-909-71	IC	BA4558F
⚠IC351	8-759-933-22	IC	BA3707
IC353	8-759-932-67	IC	BU4053BF
IC354	8-759-932-67	IC	BU4053BF
IC401	8-759-909-71	IC	BA4558F

< JUMPER RESISTOR >

Ref. No.	Part No.	Description			Remark
JR101	1-216-295-00	METAL CHIP	0	5%	1/10W
JR102	1-216-295-00	METAL CHIP	0	5%	1/10W
JR105	1-216-295-00	METAL CHIP	0	5%	1/10W
JR107	1-216-295-00	METAL CHIP	0	5%	1/10W
JR108	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR109	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR111	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR112	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR113	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR114	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR115	1-216-295-00	METAL CHIP	0	5%	1/10W
JR116	1-216-295-00	METAL CHIP	0	5%	1/10W
JR117	1-216-295-00	METAL CHIP	0	5%	1/10W
JR118	1-216-295-00	METAL CHIP	0	5%	1/10W
JR119	1-216-295-00	METAL CHIP	0	5%	1/10W
JR120	1-216-295-00	METAL CHIP	0	5%	1/10W
JR121	1-216-295-00	METAL CHIP	0	5%	1/10W
JR122	1-216-295-00	METAL CHIP	0	5%	1/10W
JR123	1-216-295-00	METAL CHIP	0	5%	1/10W
JR124	1-216-295-00	METAL CHIP	0	5%	1/10W
JR125	1-216-295-00	METAL CHIP	0	5%	1/10W
JR126	1-216-295-00	METAL CHIP	0	5%	1/10W
JR127	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR128	1-216-295-00	METAL CHIP	0	5%	1/10W
JR129	1-216-295-00	METAL CHIP	0	5%	1/10W
JR130	1-216-295-00	METAL CHIP	0	5%	1/10W
JR131	1-216-295-00	METAL CHIP	0	5%	1/10W
JR132	1-216-295-00	METAL CHIP	0	5%	1/10W
JR133	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR134	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR135	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR136	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR137	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR138	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR139	1-216-296-91	METAL GLAZE	0	5%	1/8W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

KR-24

Ref. No.	Part No.	Description			Remark
JR140	1-216-295-00	METAL CHIP	0	5%	1/10W
JR141	1-216-295-00	METAL CHIP	0	5%	1/10W
JR142	1-216-295-00	METAL CHIP	0	5%	1/10W
JR143	1-216-295-00	METAL CHIP	0	5%	1/10W
JR144	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR145	1-216-295-00	METAL CHIP	0	5%	1/10W
JR146	1-216-295-00	METAL CHIP	0	5%	1/10W
JR147	1-216-295-00	METAL CHIP	0	5%	1/10W
JR148	1-216-295-00	METAL CHIP	0	5%	1/10W
JR149	1-216-295-00	METAL CHIP	0	5%	1/10W
JR150	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR151	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR152	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR154	1-216-295-00	METAL CHIP	0	5%	1/10W
JR191	1-216-295-00	METAL CHIP	0	5%	1/10W
JR203	1-216-296-91	METAL GLAZE	0	5%	1/8W

< COIL >

L201	1-408-417-00	INDUCTOR	47uH
L202	1-408-417-00	INDUCTOR	47uH
L203	1-408-417-00	INDUCTOR	47uH
L204	1-408-417-00	INDUCTOR	47uH
L206	1-408-417-00	INDUCTOR	47uH
⚠L207	1-408-409-00	INDUCTOR	10uH
L208	1-408-409-00	INDUCTOR	10uH
L209	1-408-421-00	INDUCTOR	100uH
⚠L351	1-408-417-00	INDUCTOR	47uH

< TRANSISTOR >

Q252	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q253	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q350	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q351	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q352	8-729-901-01	TRANSISTOR	DTC144EK
Q353	8-729-901-01	TRANSISTOR	DTC144EK
Q354	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q355	8-729-901-01	TRANSISTOR	DTC144EK
Q401	8-729-120-28	TRANSISTOR	2SC1623-L5L6
Q402	8-729-901-01	TRANSISTOR	DTC144EK
Q403	8-729-901-04	TRANSISTOR	DTA114EK
Q405	8-729-800-37	TRANSISTOR	2SD1048-X7
Q406	8-729-800-37	TRANSISTOR	2SD1048-X7

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R106	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R107	1-216-091-00	METAL CHIP	56K	5%	1/10W
R108	1-216-091-00	METAL CHIP	56K	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R116	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R120	1-216-099-00	METAL CHIP	120K	5%	1/10W
R121	1-216-248-00	METAL GLAZE	120K	5%	1/8W
R130	1-216-049-00	METAL CHIP	1K	5%	1/10W
R204	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R205	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R206	1-216-077-00	METAL CHIP	15K	5%	1/10W
R207	1-216-077-00	METAL CHIP	15K	5%	1/10W
R208	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R211	1-216-099-00	METAL CHIP	120K	5%	1/10W
R212	1-216-075-00	METAL CHIP	12K	5%	1/10W
R213	1-216-099-00	METAL CHIP	120K	5%	1/10W
R214	1-216-075-00	METAL CHIP	12K	5%	1/10W
R215	1-216-099-00	METAL CHIP	120K	5%	1/10W
R216	1-216-075-00	METAL CHIP	12K	5%	1/10W
R254	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R255	1-216-081-00	METAL CHIP	22K	5%	1/10W
R256	1-249-418-11	CARBON	1.2K	5%	1/4W
R257	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R258	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R260	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R261	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R262	1-216-198-91	METAL GLAZE	1K	5%	1/8W
R264	1-216-049-00	METAL CHIP	1K	5%	1/10W
R265	1-216-296-91	METAL GLAZE	0	5%	1/8W
R266	1-216-081-00	METAL CHIP	22K	5%	1/10W
R267	1-216-081-00	METAL CHIP	22K	5%	1/10W
R268	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R269	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R270	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R271	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R272	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R273	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R274	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R275	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R276	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R277	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R278	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R279	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R280	1-216-295-00	METAL CHIP	0	5%	1/10W
R281	1-216-295-00	METAL CHIP	0	5%	1/10W
R282	1-216-049-00	METAL CHIP	1K	5%	1/10W
R283	1-216-049-00	METAL CHIP	1K	5%	1/10W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
R291	1-216-081-00	METAL CHIP	22K	5%	1/10W
R292	1-216-081-00	METAL CHIP	22K	5%	1/10W
R293	1-249-423-11	CARBON	3.3K	5%	1/4W F
R294	1-249-423-11	CARBON	3.3K	5%	1/4W F
R299	1-216-025-00	METAL CHIP	100	5%	1/10W
R301	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R302	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R303	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R304	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R305	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R306	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R307	1-216-073-00	METAL CHIP	10K	5%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W
R309	1-216-073-00	METAL CHIP	10K	5%	1/10W
R310	1-216-073-00	METAL CHIP	10K	5%	1/10W
R311	1-216-073-00	METAL CHIP	10K	5%	1/10W
R312	1-216-073-00	METAL CHIP	10K	5%	1/10W
R313	1-216-043-00	METAL CHIP	560	5%	1/10W
R314	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R315	1-216-089-00	METAL CHIP	47K	5%	1/10W
R316	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R350	1-216-081-00	METAL CHIP	22K	5%	1/10W
R351	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R352	1-216-097-00	METAL CHIP	100K	5%	1/10W
R353	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R354	1-249-429-11	CARBON	10K	5%	1/4W
R355	1-216-073-00	METAL CHIP	10K	5%	1/10W
R356	1-216-089-00	METAL CHIP	47K	5%	1/10W
R357	1-216-085-00	METAL CHIP	33K	5%	1/10W
R358	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R359	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R360	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R362	1-216-049-00	METAL CHIP	1K	5%	1/10W
R363	1-216-198-91	METAL GLAZE	1K	5%	1/8W
R364	1-216-081-00	METAL CHIP	22K	5%	1/10W
R365	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R366	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W
R367	1-216-113-00	METAL CHIP	470K	5%	1/10W
R368	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R369	1-216-073-00	METAL CHIP	10K	5%	1/10W
R370	1-216-073-00	METAL CHIP	10K	5%	1/10W
R372	1-216-073-00	METAL CHIP	10K	5%	1/10W
R373	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R374	1-216-073-00	METAL CHIP	10K	5%	1/10W
R375	1-216-066-00	METAL CHIP	5.1K	5%	1/10W
R376	1-249-424-11	CARBON	3.9K	5%	1/4W F
R377	1-249-424-11	CARBON	3.9K	5%	1/4W F
R378	1-216-113-00	METAL CHIP	470K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R379	1-216-113-00	METAL CHIP	470K	5%	1/10W
R380	1-249-441-11	CARBON	100K	5%	1/4W
R401	1-216-073-00	METAL CHIP	10K	5%	1/10W
R402	1-216-081-00	METAL CHIP	22K	5%	1/10W
R403	1-216-081-00	METAL CHIP	22K	5%	1/10W
R404	1-216-081-00	METAL CHIP	22K	5%	1/10W
R409	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R410	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R412	1-216-081-00	METAL CHIP	22K	5%	1/10W
R413	1-216-095-00	METAL CHIP	82K	5%	1/10W
R416	1-216-081-00	METAL CHIP	22K	5%	1/10W
R417	1-216-095-00	METAL CHIP	82K	5%	1/10W
R420	1-216-081-00	METAL CHIP	22K	5%	1/10W

< VIBRATOR >

X201 1-567-192-11 OSCILLATOR, CERAMIC (4.00MHz)

****

* A-6782-306-A MA-202 BOARD, COMPLETE (K881)
****

* A-6782-307-A MA-202 BOARD, COMPLETE
****
(736EE/836EE/X821/X831)

* A-6782-308-A MA-202 BOARD, COMPLETE (X731)
****
(Ref. No. 2,000Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C001	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C002	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C003	1-126-157-11	ELECT	10uF	20%	16V
C004	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C006	1-124-589-11	ELECT	47uF	20%	16V
C008	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C009	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C022	1-161-379-00	CERAMIC	0.01uF	20%	25V
C025	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C026	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C101	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C102	1-124-126-00	ELECT	47uF	20%	10V
C103	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C104	1-126-233-11	ELECT	22uF	20%	50V
C105	1-124-443-00	ELECT	100uF	20%	10V
C106	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C107	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C108	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C109	1-124-925-11	ELECT	2.2uF	20%	100V
C110	1-124-477-11	ELECT	47uF	20%	25V

MA-202

Ref. No.	Part No.	Description			Remark
C201	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C202	1-124-589-11	ELECT	47uF	20%	16V
C203	1-126-101-11	ELECT	100uF	20%	16V
C204	1-130-491-00	MYLAR	0.047uF	5%	50V
C205	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C206	1-126-233-11	ELECT	22uF	20%	50V
C207	1-137-372-11	FILM	0.022uF	5%	50V
C208	1-124-257-00	ELECT	2.2uF	20%	50V
C209	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C210	1-128-057-11	ELECT	330uF	20%	6.3V
C211	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C212	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C213	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C214	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C215	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C230	1-162-282-31	CERAMIC	100PF	10%	50V
C301	1-126-157-11	ELECT	10uF	20%	16V
C302	1-126-157-11	ELECT	10uF	20%	16V
C303	1-126-153-11	ELECT	22uF	20%	6.3V
C304	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C351	1-126-157-11	ELECT	10uF	20%	16V
C352	1-126-157-11	ELECT	10uF	20%	16V
C353	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C356	1-126-157-11	ELECT	10uF	20%	16V
C361	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C362	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C381	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C401	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C402	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C403	1-124-902-00	ELECT	0.47uF	20%	50V
C404	1-124-907-11	ELECT	10uF	20%	50V
C405	1-137-370-11	FILM	0.01uF	5%	50V
C406	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C407	1-124-903-11	ELECT	1uF	20%	50V
C408	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C409	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C410	1-124-907-11	ELECT	10uF	20%	50V
C411	1-124-252-00	ELECT	0.33uF	20%	50V
C412	1-124-261-00	ELECT	10uF	20%	50V
C413	1-124-261-00	ELECT	10uF	20%	50V
C414	1-130-493-00	MYLAR	0.068uF	5%	50V
C415	1-124-903-11	ELECT	1uF	20%	50V
C416	1-130-485-00	MYLAR	0.015uF	5%	50V
C417	1-104-792-51	ELECT	33uF	20%	16V
C418	1-104-792-51	ELECT	33uF	20%	16V
C852	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C853	1-164-232-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C854	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C855	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V (EXCEPT X731)
C856	1-104-696-11	FILM	0.015uF	5%	100V (X731)
C856	1-137-612-11	FILM	0.0068uF		100V (EXCEPT X731)
C857	1-104-697-11	FILM	0.047uF	5%	100V (EXCEPT X731)
C858	1-104-695-11	FILM	330PF	5%	100V
C859	1-124-120-11	ELECT	220uF	20%	25V (X731)
C859	1-126-101-11	ELECT	100uF	20%	16V (EXCEPT X731)
C860	1-126-101-11	ELECT	100uF	20%	16V (EXCEPT X731)

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN002	1-569-335-11	CONNECTOR, BOARD TO BOARD 9P	
CN003	1-691-643-11	CONNECTOR, BOARD TO BOARD	
CN005	1-506-468-11	PIN, CONNECTOR 3P	
CN006	1-569-333-11	CONNECTOR, BOARD TO BOARD 3P	
CN101	1-506-468-11	PIN, CONNECTOR 3P	
CN201	1-506-470-11	PIN, CONNECTOR 5P	
* CN301	1-764-211-11	CONNECTOR, BOARD TO BOARD 13P	
CN302	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
* CN303	1-573-847-11	CONNECTOR, BOARD TO BOARD 15P	
CN304	1-573-852-11	CONNECTOR, BOARD TO BOARD 20P	
* CN402	1-695-821-11	CONNECTOR, BOARD TO BOARD 12P	
* CN405	1-573-843-11	CONNECTOR, BOARD TO BOARD 11P	(EXCEPT X731)
* CN406	1-573-843-11	CONNECTOR, BOARD TO BOARD 11P	(EXCEPT X731)
CN601	1-506-479-11	PIN, CONNECTOR 14P	(K881)
* CN801	1-691-409-11	CONNECTOR, BOARD TO BOARD 10P	
* CN802	1-764-210-11	CONNECTOR, BOARD TO BOARD 12P	
CN803	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
* CN854	1-560-892-00	PIN, CONNECTOR 4P	
* CN855	1-560-891-00	PIN, CONNECTOR 3P	
* CN857	1-560-892-00	PIN, CONNECTOR 4P	

< DIODE >

Ref. No.	Part No.	Description	
D001	8-719-985-00	DIODE	GL451VS1
D004	8-719-109-93	DIODE	RD6.2ES-B2
D005	8-719-109-93	DIODE	RD6.2ES-B2
D006	8-719-109-93	DIODE	RD6.2ES-B2
D007	8-719-109-93	DIODE	RD6.2ES-B2
D201	8-719-901-33	DIODE	1SS133
D202	8-719-109-74	DIODE	RD4.3ES-B1
D203	8-719-109-81	DIODE	RD4.7ES-B2
D204	8-719-200-82	DIODE	11ES2
D206	8-719-901-33	DIODE	1SS133

Ref. No.	Part No.	Description	Remark
D353	8-719-911-19	DIODE 1SS119	
D354	8-719-801-78	DIODE 1SS184	(X731)
D401	8-719-901-33	DIODE 1SS133	(K881/X731)
D403	8-719-901-33	DIODE 1SS133	(K881/X731)
D404	8-719-901-33	DIODE 1SS133	
D405	8-719-901-33	DIODE 1SS133	

< IC >

Ref. No.	Part No.	Description	Remark
IC002	8-759-983-74	IC LM324NS	
IC101	8-759-246-14	IC TA8823N	
⚠IC201	8-759-983-45	IC BA6238A	
IC202	8-759-981-48	IC RC082M2G2	
IC203	8-752-846-05	IC CXP80732-012Q	(X731)
IC203	8-752-851-96	IC CXP80732-014Q	(EXCEPT X731)
IC301	8-759-266-03	IC NJM2233BM(TE2)	
IC303	8-759-097-80	IC HD49783FP	
IC305	8-759-710-07	IC NJM2234M	
IC401	8-759-089-82	IC BA7790LS	
IC402	8-759-513-05	IC LVA521S	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description	Remark
JR001	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR002	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR003	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR004	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR005	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR006	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR007	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR008	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR009	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR010	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR011	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR012	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR013	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR014	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR015	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR016	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR017	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR018	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR019	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR020	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR021	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR022	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR023	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR024	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR025	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR026	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR027	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR028	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR029	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR030	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR031	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR032	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR033	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR034	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR035	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR036	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR601	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR603	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR606	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR617	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR619	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT X731)

< COIL >

Ref. No.	Part No.	Description	Remark
L101	1-414-189-31	INDUCTOR 100uH	
L201	1-414-185-41	INDUCTOR 22uH	
L202	1-414-183-41	INDUCTOR 10uH	
L301	1-414-189-31	INDUCTOR 100uH	
L352	1-414-183-41	INDUCTOR 10uH	
L401	1-410-071-11	INDUCTOR 10mH	
L402	1-414-183-41	INDUCTOR 10uH	
L852	1-410-687-11	INDUCTOR 1.2mH	
L853	1-410-687-11	INDUCTOR 1.2mH	(EXCEPT X731)

< PHOTO INTERRUPTER >

Ref. No.	Part No.	Description	Remark
PH001	8-759-144-33	IC PS6002	
PH002	8-759-144-33	IC PS6002	

< IC LINK >

Ref. No.	Part No.	Description	Remark
⚠PS201	1-532-685-00	LINK, IC	
⚠PS851	1-532-679-00	LINK, IC	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q001	8-729-926-31	TRANSISTOR PT483F1S	
Q002	8-729-926-31	TRANSISTOR PT483F1S	
Q201	8-729-424-56	TRANSISTOR UN211L	
Q302	8-729-424-18	TRANSISTOR UN2113	
Q303	8-729-424-08	TRANSISTOR UN2111	
Q304	8-729-900-99	TRANSISTOR DTA144WK	
Q305	8-729-900-99	TRANSISTOR DTA144WK	
Q306	8-729-900-99	TRANSISTOR DTA144WK	
Q354	8-729-421-19	TRANSISTOR UN2213	
Q380	8-729-424-18	TRANSISTOR UN2113	
Q450	8-729-216-22	TRANSISTOR 2SA1162-G	(X731)
Q451	8-729-922-91	TRANSISTOR 2SD1757K-T146-S	(X731)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MA-202

Ref. No.	Part No.	Description				Remark
⚠Q851	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q			
⚠Q852	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q			(EXCEPT X731)
Q853	8-729-422-27	TRANSISTOR	2SD601A-Q			
⚠Q854	8-729-216-22	TRANSISTOR	2SA1162-G			
⚠Q855	8-729-216-22	TRANSISTOR	2SA1162-G			(EXCEPT X731)
		< RESISTOR >				
R001	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R002	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R003	1-249-426-11	CARBON	5.6K	5%	1/4W	
R004	1-249-426-11	CARBON	5.6K	5%	1/4W	
R005	1-216-045-00	METAL CHIP	680	5%	1/10W	
R006	1-249-441-11	CARBON	100K	5%	1/4W	
R007	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R008	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R009	1-216-180-00	METAL GLAZE	180	5%	1/8W	
R010	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R011	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R012	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R015	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R016	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R017	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R018	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R019	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R020	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R023	1-216-043-00	METAL CHIP	560	5%	1/10W	
R024	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R025	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R101	1-247-901-11	CARBON	820K	5%	1/4W	
R102	1-249-439-11	CARBON	68K	5%	1/4W	
R103	1-249-441-11	CARBON	100K	5%	1/4W	
R104	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R105	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R106	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R107	1-216-037-00	METAL CHIP	330	5%	1/10W	
R108	1-216-025-00	METAL CHIP	100	5%	1/10W	
R109	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R110	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R126	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W	
R202	1-216-295-00	METAL CHIP	0	5%	1/10W	
R203	1-249-429-11	CARBON	10K	5%	1/4W	
R204	1-249-429-11	CARBON	10K	5%	1/4W	
R205	1-249-429-11	CARBON	10K	5%	1/4W	
R206	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R207	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R208	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R209	1-216-240-00	METAL GLAZE	56K	5%	1/8W	
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R211	1-216-660-11	METAL CHIP	2.4K	0.5%	1/10W	
R212	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R213	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R214	1-216-103-91	METAL GLAZE	180K	5%	1/10W	
R215	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R218	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R219	1-249-431-11	CARBON	15K	5%	1/4W	
R222	1-249-422-11	CARBON	2.7K	5%	1/4W	F
R224	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R225	1-216-238-91	METAL GLAZE	47K	5%	1/8W	
R226	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R227	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R230	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R301	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R304	1-247-807-31	CARBON	100	5%	1/4W	
R305	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R354	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R355	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R356	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R362	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R363	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R364	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R365	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R366	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R367	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R368	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R369	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R370	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R371	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R372	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R373	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R374	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R375	1-216-017-00	METAL CHIP	47	5%	1/10W	
R376	1-216-017-00	METAL CHIP	47	5%	1/10W	
R377	1-216-025-00	METAL CHIP	100	5%	1/10W	
R380	1-247-807-31	CARBON	100	5%	1/4W	
R381	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R401	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R402	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R403	1-216-033-00	METAL CHIP	220	5%	1/10W	
R404	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R405	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R406	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R407	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R408	1-216-079-00	METAL CHIP	18K	5%	1/10W	(EXCEPT X731)
R408	1-216-083-00	METAL CHIP	27K	5%	1/10W	(X731)
R409	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	

The components identified by
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⚠ are critical for safety.
Replace only with part number
specified.

Ref. No.	Part No.	Description			Remark
R410	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R411	1-249-436-11	CARBON	39K	5%	1/4W
R414	1-249-428-11	CARBON	8.2K	5%	1/4W F
R415	1-249-436-11	CARBON	39K	5%	1/4W
R416	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R417	1-249-435-11	CARBON	33K	5%	1/4W (X731)
R418	1-216-033-00	METAL CHIP	220	5%	1/10W
R419	1-216-077-00	METAL CHIP	15K	5%	1/10W
R420	1-249-411-11	CARBON	330	5%	1/4W
R421	1-216-043-00	METAL CHIP	560	5%	1/10W
R422	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R423	1-216-089-00	METAL CHIP	47K	5%	1/10W
R424	1-216-085-00	METAL CHIP	33K	5%	1/10W (K881/X731)
R425	1-216-232-00	METAL GLAZE	27K	5%	1/8W (K881/X731)
R426	1-249-434-11	CARBON	27K	5%	1/4W
R450	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (X731)
R451	1-249-414-11	CARBON	560	5%	1/4W F (X731)
R452	1-216-049-00	METAL CHIP	1K	5%	1/10W (X731)
R854	1-216-669-11	METAL CHIP	5.6K	0.5%	1/10W (EXCEPT X731)
R855	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W (EXCEPT X731)
R856	1-216-097-00	METAL CHIP	100K	5%	1/10W (EXCEPT X731)
R856	1-216-689-11	METAL CHIP	39K	0.5%	1/10W(X731)
R857	1-216-097-00	METAL CHIP	100K	5%	1/10W (EXCEPT X731)
R858	1-216-089-00	METAL CHIP	47K	5%	1/10W
R859	1-216-073-00	METAL CHIP	10K	5%	1/10W
R860	1-216-234-00	METAL GLAZE	33K	5%	1/8W
R861	1-216-095-00	METAL CHIP	82K	5%	1/10W
R866	1-216-001-00	METAL CHIP	10	5%	1/10W
R867	1-216-295-00	METAL CHIP	0	5%	1/10W
R868	1-216-081-00	METAL CHIP	22K	5%	1/10W
R869	1-249-389-11	CARBON	4.7	5%	1/4W F (X731)
⚠R869	1-249-395-11	CARBON	15	5%	1/4W F (EXCEPT X731)
R870	1-216-083-00	METAL CHIP	27K	5%	1/10W (EXCEPT X731)
⚠R871	1-249-394-11	CARBON	12	5%	1/6W F (EXCEPT X731)
R898	1-249-417-11	CARBON	1K	5%	1/4W F (EXCEPT X731)
R899	1-249-417-11	CARBON	1K	5%	1/4W F

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV201	1-238-019-11	RES, ADJ, CARBON 47K	(EXCEPT X731)
RV202	1-238-019-11	RES, ADJ, CARBON 47K	
RV851	1-241-767-21	RES, ADJ, CARBON 100K	
		< SWITCH >	
S001	1-570-953-11	SWITCH, PUSH (1 KEY)	
S002	1-570-953-11	SWITCH, PUSH (1 KEY)	
		< TRANSFORMER >	
T851	1-423-413-11	TRANSFORMER, BIAS OSCILLATION	(EXCEPT X731)
T851	1-423-414-11	TRANSFORMER, BIAS OSCILLATION	(X731)
T852	1-423-415-11	TRANSFORMER, BIAS OSCILLATION	(EXCEPT X731)
		< VIBRATOR >	
X201	1-578-774-11	VIBRATOR, CRYSTAL (12MHz)	
**			
*	A-6720-616-A	MF-245 BOARD, COMPLETE (K881) ***********************	
*	A-6720-624-A	MF-245 BOARD, COMPLETE ***********************	(736EE/836EE/X831/X821)
*	A-6720-629-A	MF-245 BOARD, COMPLETE (X731) ***********************	(Ref. No. 5,000Series)
		< CAPACITOR >	
C902	1-163-031-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
* CN901	1-695-820-11	CONNECTOR, BOARD TO BOARD 12P	(K881)
* CN902	1-764-212-11	CONNECTOR, BOARD TO BOARD 13P	
* CN903	1-695-820-11	CONNECTOR, BOARD TO BOARD 12P	
		< DIODE >	
D902	8-719-109-93	DIODE RD6.2ES-B2	
D903	8-719-940-99	LED SLR34VC3	
D904	8-719-108-12	DIODE RD9.1E-W	
D905	8-719-108-12	DIODE RD9.1E-W	(EXCEPT X731)
D906	8-719-940-82	LED SLR34MC3	
D907	8-719-108-12	DIODE RD9.1E-W	
D908	8-719-940-82	LED SLR34MC3	
D909	8-719-109-93	DIODE RD6.2ES-B2	
D910	8-719-109-93	DIODE RD6.2ES-B2	

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Ref. No.	Part No.	Description	Remark
D911	8-719-109-93	DIODE RD6.2ES-B2	
D912	8-719-109-93	DIODE RD6.2ES-B2	
D913	8-719-109-93	DIODE RD6.2ES-B2	
		< JUMPER RESISTOR >	
JR901	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR902	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR903	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR904	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR905	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR906	1-216-296-91	METAL GLAZE 0 5% 1/8W	
		< JACK >	
PJ901	1-695-863-11	JACK, PIN 2P (LINE IN 2) (X731)	
PJ901	1-695-865-21	JACK, PIN 3P (LINE IN 2) (EXCEPT X731)	
		< TRANSISTOR >	
Q901	8-729-901-04	TRANSISTOR DTA114EK	
Q902	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R904	1-216-035-00	METAL CHIP 270 5% 1/10W	
R905	1-216-021-00	METAL CHIP 68 5% 1/10W	
R906	1-216-022-00	METAL CHIP 75 5% 1/10W	
R907	1-216-295-00	METAL CHIP 0 5% 1/10W	
R908	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT X731)
R909	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
		< SWITCH >	
S901	1-571-977-11	SWITCH, TACTIL (ON/STANDBY)	
S902	1-571-977-11	SWITCH, TACTIL (EJECT)	

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Ref. No.	Part No.	Description	Remark
*	A-6720-617-A	MF-246 BOARD, COMPLETE (K881)	
		**********************	
*	A-6720-625-A	MF-246 BOARD, COMPLETE (X831)	
		**********************	
*	A-6720-626-A	MF-246 BOARD, COMPLETE (836EE)	
		**********************	
*	A-6720-627-A	MF-246 BOARD, COMPLETE (736EE)	
		**********************	
*	A-6720-628-A	MF-246 BOARD, COMPLETE (X821)	
		**********************	
*	A-6720-630-A	MF-246 BOARD, COMPLETE (X731)	
		**********************	
			(Ref. No. 5,000Series)
	3-697-607-01	HOLDER, LED	
*	3-957-949-01	HOLDER, INDICATION TUBE	
		< CAPACITOR >	
C101	1-163-098-00	CERAMIC CHIP 16PF 5% 50V	
C102	1-163-235-11	CERAMIC CHIP 22PF 5% 50V	
C103	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C104	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C105	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C106	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C107	1-128-057-11	ELECT 330uF 20% 6.3V	
C108	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C109	1-104-905-11	CAP, DOUBLE LAYERS 0.22F	
C111	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C112	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C114	1-124-261-00	ELECT 10uF 20% 50V	
C115	1-163-031-11	CERAMIC CHIP 0.01uF 50V	(K881)
C117	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
		< CONNECTOR >	
CN101	1-692-726-11	SWITCH, ROTARY (LED)	
CN102	1-562-719-11	SOCKET, CONNECTOR 10P	
CN103	1-750-191-21	CONNECTOR, BOARD TO BOARD 20P	
* CN104	1-750-188-11	CONNECTOR, BOARD TO BOARD 14P	
* CN105	1-764-211-11	CONNECTOR, BOARD TO BOARD 13P	
		< DIODE >	
D106	8-719-946-30	LED SLR34DC3	
D107	8-719-812-32	LED TLY123	
D108	8-719-940-99	LED SLR34VC3	
D109	8-719-940-99	LED SLR34VC3	
D111	8-719-911-19	DIODE 1SS119	

Ref. No.	Part No.	Description	Remark
D112	8-719-200-82	DIODE 11ES2	
D113	8-719-109-93	DIODE RD6.2ES-B2	
D115	8-719-110-08	DIODE RD8.2ES-B2	
D117	8-719-400-20	DIODE MA152WA	(K881)
D117	8-719-914-44	DIODE DAP202K	(K881)
D118	8-719-400-20	DIODE MA152WA	(K881)
D118	8-719-914-44	DIODE DAP202K	(K881)
		< IC >	
IC101	8-759-255-25	IC MB89096PF-G-126-BND	
IC102	8-759-501-99	IC ST93C46AB1	
IC103	8-759-520-98	IC PST572K	
IC104	8-759-510-43	IC PST572C	
IC105	1-466-833-11	IC RAY-CATCHER BLOCK, REMOCON	
IC106	8-759-932-79	IC BU4030BF	(K881)
		< JUMPER RESISTOR >	
JR102	1-216-295-00	METAL CHIP 0 5%	1/10W (836EE/K881/X831)
JR103	1-216-295-00	METAL CHIP 0 5%	1/10W (EXCEPT X731)
JR104	1-216-295-00	METAL CHIP 0 5%	1/10W (EXCEPT X731)
JR107	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
JR112	1-216-295-00	METAL CHIP 0 5%	1/10W
JR113	1-216-295-00	METAL CHIP 0 5%	1/10W
JR120	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
JR121	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
JR122	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
JR198	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR199	1-216-296-91	METAL GLAZE 0 5%	1/8W
JR996	1-216-295-00	METAL CHIP 0 5%	1/10W
JR998	1-216-295-00	METAL CHIP 0 5%	1/10W
JR999	1-216-296-91	METAL GLAZE 0 5%	1/8W
		< COIL >	
L102	1-414-183-41	INDUCTOR 10uH	
		< FLUORESCENT INDICATOR >	
ND101	1-517-295-11	INDICATOR TUBE, FLUORESCENT	(X731)
ND101	1-517-296-11	INDICATOR TUBE, FLUORESCENT	(K881/X821/X831)
ND101	1-517-296-21	INDICATOR TUBE, FLUORESCENT	(736EE/836EE)
		< TRANSISTOR >	
Q101	8-729-421-19	TRANSISTOR UN2213	
Q102	8-729-421-19	TRANSISTOR UN2213	
Q103	8-729-421-19	TRANSISTOR UN2213	(EXCEPT X731)
Q104	8-729-421-19	TRANSISTOR UN2213	(EXCEPT X731)
Q105	8-729-421-19	TRANSISTOR UN2213	
		< RESISTOR >	
R101	1-216-079-00	METAL CHIP 18K 5%	1/10W (EXCEPT X731)
R102	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R103	1-216-031-00	METAL CHIP 180 5%	1/10W
R104	1-216-031-00	METAL CHIP 180 5%	1/10W
R105	1-216-031-00	METAL CHIP 180 5%	1/10W
R106	1-216-031-00	METAL CHIP 180 5%	1/10W
R107	1-249-411-11	CARBON 330 5%	1/4W
R108	1-216-031-00	METAL CHIP 180 5%	1/10W
R109	1-216-035-00	METAL CHIP 270 5%	1/10W (EXCEPT X731)
R109	1-216-184-00	METAL GLAZE 270 5%	1/8W (X731)
R110	1-216-035-00	METAL CHIP 270 5%	1/10W
R111	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R112	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R114	1-216-049-00	METAL CHIP 1K 5%	1/10W
R115	1-216-049-00	METAL CHIP 1K 5%	1/10W
R116	1-216-049-00	METAL CHIP 1K 5%	1/10W
R118	1-216-295-00	METAL CHIP 0 5%	1/10W
R119	1-216-049-00	METAL CHIP 1K 5%	1/10W
R120	1-216-033-00	METAL CHIP 220 5%	1/10W
R121	1-216-049-00	METAL CHIP 1K 5%	1/10W
R122	1-216-049-00	METAL CHIP 1K 5%	1/10W
R123	1-216-049-00	METAL CHIP 1K 5%	1/10W
R124	1-216-049-00	METAL CHIP 1K 5%	1/10W
R125	1-216-049-00	METAL CHIP 1K 5%	1/10W (EXCEPT X731)
R126	1-216-182-00	METAL GLAZE 220 5%	1/8W (K881)
R127	1-216-049-00	METAL CHIP 1K 5%	1/10W
R128	1-216-049-00	METAL CHIP 1K 5%	1/10W
R129	1-216-033-00	METAL CHIP 220 5%	1/10W
R130	1-216-073-00	METAL CHIP 10K 5%	1/10W
R132	1-216-073-00	METAL CHIP 10K 5%	1/10W
R133	1-216-295-00	METAL CHIP 0 5%	1/10W
R134	1-216-073-00	METAL CHIP 10K 5%	1/10W
R135	1-216-295-00	METAL CHIP 0 5%	1/10W
R138	1-216-295-00	METAL CHIP 0 5%	1/10W
R139	1-216-073-00	METAL CHIP 10K 5%	1/10W
R140	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
R141	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
R142	1-216-057-00	METAL CHIP 2.2K 5%	1/10W(X731)
R143	1-216-073-00	METAL CHIP 10K 5%	1/10W
R144	1-216-073-00	METAL CHIP 10K 5%	1/10W (EXCEPT K881)
R145	1-216-057-00	METAL CHIP 2.2K 5%	1/10W(X831)

Ref. No.	Part No.	Description	Remark
R145	1-216-065-00	METAL CHIP 4.7K 5%	1/10W(836EE)
R145	1-216-070-00	METAL CHIP 7.5K 5%	1/10W(736EE)
R145	1-216-077-00	METAL CHIP 15K 5%	1/10W(X821)
R145	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
R146	1-216-295-00	METAL CHIP 0 5%	1/10W(K881)
R147	1-216-049-00	METAL CHIP 1K 5%	1/10W
R148	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R149	1-216-049-00	METAL CHIP 1K 5%	1/10W
R151	1-216-095-00	METAL CHIP 82K 5%	1/10W
R152	1-216-073-00	METAL CHIP 10K 5%	1/10W
R153	1-216-073-00	METAL CHIP 10K 5%	1/10W
R154	1-216-296-91	METAL GLAZE 0 5%	1/8W (EXCEPT X731)
R155	1-216-049-00	METAL CHIP 1K 5%	1/10W
R156	1-216-049-00	METAL CHIP 1K 5%	1/10W
R157	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R158	1-216-113-00	METAL CHIP 470K 5%	1/10W
R159	1-216-073-00	METAL CHIP 10K 5%	1/10W
R160	1-216-073-00	METAL CHIP 10K 5%	1/10W
R161	1-216-080-00	METAL CHIP 20K 5%	1/10W (EXCEPT X731)
R162	1-216-222-00	METAL GLAZE 10K 5%	1/8W (X731)
R165	1-216-073-00	METAL CHIP 10K 5%	1/10W
R166	1-216-073-00	METAL CHIP 10K 5%	1/10W
R167	1-216-073-00	METAL CHIP 10K 5%	1/10W
R168	1-216-222-00	METAL GLAZE 10K 5%	1/8W
R169	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R171	1-216-295-00	METAL CHIP 0 5%	1/10W (EXCEPT K811)
R175	1-216-073-00	METAL CHIP 10K 5%	1/10W(K881)
		< SWITCH >	
S101	1-571-977-11	SWITCH, TACTIL (HI-SPEED REWIND)	
S102	1-571-977-11	SWITCH, TACTIL (PAUSE)	
S103	1-692-726-11	SWITCH, ROTARY (LED)(PLAY/STOP/REW/FF)	
		< VIBRATOR >	
X101	1-579-436-11	VIBLATOR, CRYSTAL (32KHz)	
X102	1-579-175-11	VIBRATOR, CERAMIC (10MHz)	

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Ref. No.	Part No.	Description	Remark
*	A-6720-622-A	MJ-63 BOARD, COMPLETE (K881)	

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(Ref. No. 8,000Series)

Ref. No.	Part No.	Description	Remark
		< CAPACITOR >	
C901	1-163-025-11	CERAMIC CHIP 0.001uF	50V
C902	1-163-025-11	CERAMIC CHIP 0.001uF	50V
C903	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C904	1-126-163-11	ELECT 4.7uF 20%	50V
C905	1-126-163-11	ELECT 4.7uF 20%	50V
C906	1-124-261-00	ELECT 10uF 20%	50V
C907	1-124-261-00	ELECT 10uF 20%	50V
C908	1-124-261-00	ELECT 10uF 20%	50V
C909	1-124-261-00	ELECT 10uF 20%	50V
		< CONNECTOR >	
CN901	1-563-585-11	CONNECTOR, FLEXIBLE 8P	
		< DIODE >	
D901	8-719-109-96	DIODE RD6.8ES-B1	
D902	8-719-109-96	DIODE RD6.8ES-B1	
		< IC >	
IC901	8-759-909-71	IC BA4558F	
		< JACK >	
J901	1-750-781-11	JACK, LARGE TYPE (MIC IN 1)	
J902	1-750-781-11	JACK, LARGE TYPE (MIC IN 2)	
J903	1-507-678-00	JACK (CONTROL)	
		< RESISTOR >	
R901	1-216-049-00	METAL CHIP 1K 5%	1/10W
R902	1-216-049-00	METAL CHIP 1K 5%	1/10W
R903	1-216-081-00	METAL CHIP 22K 5%	1/10W
R904	1-216-081-00	METAL CHIP 22K 5%	1/10W
R905	1-216-055-00	METAL CHIP 1.8K 5%	1/10W
R906	1-216-091-00	METAL CHIP 56K 5%	1/10W
R907	1-216-091-00	METAL CHIP 56K 5%	1/10W
R908	1-216-055-00	METAL CHIP 1.8K 5%	1/10W
R909	1-216-097-00	METAL CHIP 100K 5%	1/10W
R910	1-216-097-00	METAL CHIP 100K 5%	1/10W
R911	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R912	1-216-053-00	METAL CHIP 1.5K 5%	1/10W

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Ref. No.	Part No.	Description	Remark
*	A-6727-564-A	PT-97 BOARD, COMPLETE (K881) **********************	
*	A-6727-566-A	PT-97 BOARD, COMPLETE (836EE/X831) **********************	
*	A-6727-569-A	PT-97 BOARD, COMPLETE (X731) **********************	
*	A-6727-576-A	PT-97 BOARD, COMPLETE (736EE/X821) **********************	(Ref.No. 3,000Series)
	1-533-293-11	FUSE HOLDER	
*	3-951-893-01	HEAT SINK	
	7-685-646-81	SCREW +BVTP 3X8 TYPE2	

< BUZZER >

Ref. No.	Part No.	Description	Remark
BZ701	1-529-080-11	BUZZER, PIEZOELECTRIC	

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C702	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V (736EE/X731/X821)
C703	1-124-927-11	ELECT	4.7uF 20% 100V (736EE/X731/X821)
C704	1-163-031-11	CERAMIC CHIP	0.01uF 50V (736EE/X731/X821)
C705	1-124-126-00	ELECT	47uF 20% 10V (736EE/X731/X821)
C706	1-163-031-11	CERAMIC CHIP	0.01uF 50V (736EE/X731/X821)
C707	1-126-101-11	ELECT	100uF 20% 16V (736EE/X731/X821)
C708	1-163-031-11	CERAMIC CHIP	0.01uF 50V (736EE/X731/X821)
C709	1-124-126-00	ELECT	47uF 20% 10V (736EE/X731/X821)
C710	1-163-031-11	CERAMIC CHIP	0.01uF 50V (736EE/X731/X821)
C711	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V (736EE/X731/X821)
C713	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V (736EE/X731/X821)
C714	1-126-233-11	ELECT	22uF 20% 50V (736EE/X731/X821)
C717	1-162-199-31	CERAMIC	10PF 5% 50V
C718	1-162-199-31	CERAMIC	10PF 5% 50V
C719	1-124-907-11	ELECT	10uF 20% 50V (736EE/X731/X821)
C722	1-163-016-00	CERAMIC CHIP	0.0039uF 10% 50V (736EE/X821)
C723	1-163-016-00	CERAMIC CHIP	0.0039uF 10% 50V (736EE/X821)
C724	1-163-016-00	CERAMIC CHIP	0.0039uF 10% 50V (736EE/X731/X821)
C726	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C733	1-163-059-00	CERAMIC CHIP	0.01uF 10% 50V
C730	1-163-031-11	CERAMIC CHIP	0.01uF 50V (736EE/X731/X821)
C731	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V (736EE/X731/X821)
C732	1-163-117-00	CERAMIC CHIP	100PF 5% 50V (736EE/X731/X821)
C734	1-163-131-00	CERAMIC CHIP	390PF 5% 50V (736EE/X731/X821)
C735	1-163-131-00	CERAMIC CHIP	390PF 5% 50V (736EE/X731/X821)
C736	1-163-131-00	CERAMIC CHIP	390PF 5% 50V (736EE/X731/X821)
C737	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V (736EE/X731/X821)
C738	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V (736EE/X731/X821)
C739	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V (736EE/X731/X821)
C750	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V (736EE/X731/X821)
C751	1-163-129-00	CERAMIC CHIP	330PF 5% 50V (736EE/X731/X821)
C752	1-124-443-00	ELECT	100uF 20% 10V
C753	1-126-233-11	ELECT	22uF 20% 50V
C756	1-124-443-00	ELECT	100uF 20% 10V
C761	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V (736EE/X731/X821)
C762	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V (736EE/X731/X821)
C763	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V (736EE/X731/X821)
C790	1-163-031-11	CERAMIC CHIP	0.01uF 50V
⚠C801	1-104-705-11	FILM	0.1uF 20% 250V
⚠C802	1-104-705-11	FILM	0.1uF 20% 250V
⚠C803	1-107-414-11	ELECT	220uF 20% 400V (X731)
⚠C803	1-107-851-11	ELECT	270uF 20% 400V (736EE/836EE/X821/X831)
⚠C803	1-107-852-11	ELECT	330uF 20% 400V (K881)
⚠C804	1-161-741-00	CERAMIC	0.001uF 10% 400V
⚠C805	1-161-741-00	CERAMIC	0.001uF 10% 400V
⚠C806	1-161-741-00	CERAMIC	0.001uF 10% 400V
⚠C807	1-161-741-00	CERAMIC	0.001uF 10% 400V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

PT-97

Ref. No.	Part No.	Description			Remark
⚠C808	1-161-741-00	CERAMIC	0.001uF	10%	400V
C810	1-124-360-00	ELECT	1000uF	20%	16V
C811	1-124-471-00	ELECT	1000uF	20%	6.3V
C812	1-124-120-11	ELECT	220uF	20%	25V
C814	1-124-477-11	ELECT	47uF	20%	25V
C815	1-126-101-11	ELECT	100uF	20%	16V
C816	1-124-443-00	ELECT	100uF	20%	10V
C818	1-124-477-11	ELECT	47uF	20%	25V
C819	1-124-442-00	ELECT	330uF	20%	6.3V
C821	1-124-442-00	ELECT	330uF	20%	6.3V
C822	1-124-477-11	ELECT	47uF	20%	25V
C823	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C824	1-124-910-11	ELECT	47uF	20%	50V
C826	1-124-910-11	ELECT	47uF	20%	50V
C829	1-124-477-11	ELECT	47uF	20%	25V
C830	1-126-103-11	ELECT	470uF	20%	16V
C831	1-163-031-11	CERAMIC CHIP	0.01uF		50V

< INLET AC >

Ref. No.	Part No.	Description
⚠CJ801	1-251-134-11	INLET, AC (NONPOLAR)(AC IN)

< CONNECTOR >

Ref. No.	Part No.	Description
CN701	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P
* CN702	1-764-212-11	CONNECTOR, BOARD TO BOARD 13P
CN703	1-750-200-21	CONNECTOR, BOARD TO BOARD 20P
* CN704	1-750-197-11	CONNECTOR, BOARD TO BOARD 14P
CN705	1-506-480-11	PIN, CONNECTOR 15P (836EE/K881/X831)
CN706	1-506-479-11	PIN, CONNECTOR 14P (836EE/K881/X831)

< COMPOSITION CIRCUIT BLOCK >

Ref. No.	Part No.	Description
⚠CP801	1-413-948-11	POWER BLOCK
⚠CP802	1-426-673-11	UNIT, DC-DC CONVERTER

< DIODE >

Ref. No.	Part No.	Description		Remark
D701	8-719-800-76	DIODE	1SS226	(736EE/X731/X821)
D702	8-719-110-78	DIODE	RD33ES-B2	(736EE/X731/X821)
⚠D704	8-719-109-97	DIODE	RD6.8ES-B2	
⚠D705	8-719-109-97	DIODE	RD6.8ES-B2	
D708	8-719-109-97	DIODE	RD6.8ES-B2	
D709	8-719-109-97	DIODE	RD6.8ES-B2	
D751	8-719-911-19	DIODE	1SS119	
⚠D752	8-719-911-19	DIODE	1SS119	
⚠D753	8-719-911-19	DIODE	1SS119	
D754	8-719-104-34	DIODE	1S2836	(736EE/X731/X821)
D755	8-719-104-34	DIODE	1S2836	(736EE/X731/X821)
D756	8-719-104-34	DIODE	1S2836	(736EE/X731/X821)
D761	8-719-109-93	DIODE	RD6.2ES-B2	
D762	8-719-109-93	DIODE	RD6.2ES-B2	
D763	8-719-109-93	DIODE	RD6.2ES-B2	
⚠D801	8-719-510-06	DIODE	S1WB60	
⚠D810	8-719-200-82	DIODE	11ES2	
⚠D811	8-719-911-19	DIODE	1SS119	
⚠D862	8-719-109-85	DIODE	RD5.1ES-B2	

< FILTER >

Ref. No.	Part No.	Description	Remark
FL750	1-567-100-00	FILTER, CERAMIC	(736EE/X731/X821)
FL751	1-567-101-11	FILTER, CERAMIC	(736EE/X731/X821)
FL752	1-567-099-00	FILTER, CERAMIC	(736EE/X731/X821)

< FUSE >

Ref. No.	Part No.	Description
⚠F801	1-576-228-11	FUSE (H.B.C.)(T2A 250V)

< IC >

Ref. No.	Part No.	Description		Remark
IC750	8-759-729-03	IC	NJM2903D	(736EE/X731/X821)
⚠IC810	8-759-189-48	IC	PQ12RE11	
⚠IC811	8-759-189-49	IC	PQ09NF1S	

< JUMPER RESISTOR >

Ref. No.	Part No.	Description			Remark
JR702	1-216-295-00	METAL CHIP	0	5%	1/10W
JR704	1-216-295-00	METAL CHIP	0	5%	1/10W
JR710	1-216-295-00	METAL CHIP	0	5%	1/10W
JR711	1-216-295-00	METAL CHIP	0	5%	1/10W
JR713	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR714	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR715	1-216-295-00	METAL CHIP	0	5%	1/10W
JR717	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR720	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR730	1-216-295-00	METAL CHIP	0	5%	1/10W
JR731	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR732	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR733	1-216-295-00	METAL CHIP	0	5%	1/10W
JR734	1-216-295-00	METAL CHIP	0	5%	1/10W
JR997	1-216-296-91	METAL GLAZE	0	5%	1/8W

< COIL >

Ref. No.	Part No.	Description	Remark
L701	1-414-189-31	INDUCTOR 100uH	(736EE/X731/X821)
L702	1-414-183-41	INDUCTOR 10uH	(736EE/X731/X821)
L703	1-410-509-11	INDUCTOR 10uH	(736EE/X731/X821)
L751	1-414-179-21	INDUCTOR 2.2uH	
L752	1-408-417-00	INDUCTOR 47uH	
L760	1-408-405-00	INDUCTOR 4.7uH	
L761	1-408-405-00	INDUCTOR 4.7uH	
L762	1-410-521-11	INDUCTOR 100uH	(736EE/X731/X821)
L763	1-410-521-11	INDUCTOR 100uH	(836EE/K881/X831)
L812	1-414-183-41	INDUCTOR 10uH	
⚠L813	1-403-588-11	CIL, CHOKE 22uH	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
⚠L821	1-403-588-11	CIL, CHOKE 22uH	
⚠L822	1-403-588-11	CIL, CHOKE 22uH	
		< LINE FILTER >	
⚠LF801	1-424-117-11	FILTER, LINE	
⚠LF802	1-424-117-11	FILTER, LINE	
		< IC LINK >	
PS811	1-532-675-00	LINK, IC 1.5A	
⚠PS812	1-532-637-00	LINK, IC 1.0A	
⚠PS813	1-532-637-00	LINK, IC 1.0A	
		< TRANSISTOR >	
Q701	8-729-173-38	TRANSISTOR 2SA733-K	(736EE/X731/X821)
Q702	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q703	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q710	8-729-421-19	TRANSISTOR UN2213	
Q711	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q712	8-729-421-19	TRANSISTOR UN2213	
Q713	8-729-216-22	TRANSISTOR 2SA1162-G	
Q714	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q715	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q716	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q717	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q718	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q719	8-729-422-27	TRANSISTOR 2SD601A-Q	(736EE/X731/X821)
Q750	8-729-421-19	TRANSISTOR UN2213	
⚠Q810	8-729-140-93	TRANSISTOR 2SB733-34	
Q811	8-729-421-22	TRANSISTOR UN2211	
⚠Q812	8-729-140-98	TRANSISTOR 2SD773-34	
		< RESISTOR >	
R701	1-216-380-11	METAL OXIDE 8.2 5% 2W	F(X731)
R706	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R707	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R708	1-216-296-91	METAL GLAZE 0 5% 1/8W	
R709	1-216-295-00	METAL CHIP 0 5% 1/10W	
R710	1-216-295-00	METAL CHIP 0 5% 1/10W	
R711	1-216-025-00	METAL CHIP 100 5% 1/10W	(736EE/X731/X821)
R712	1-216-089-00	METAL CHIP 47K 5% 1/10W	(736EE/X731/X821)
R713	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	(736EE/X731/X821)
R714	1-216-075-00	METAL CHIP 12K 5% 1/10W	(736EE/X731/X821)
R715	1-216-049-00	METAL CHIP 1K 5% 1/10W	(736EE/X731/X821)
R718	1-216-025-00	METAL CHIP 100 5% 1/10W	(736EE/X731/X821)
R719	1-216-037-00	METAL CHIP 330 5% 1/10W	(736EE/X731/X821)
R720	1-216-037-00	METAL CHIP 330 5% 1/10W	(736EE/X731/X821)
R723	1-249-417-11	CARBON 1K 5% 1/4W	F
R724	1-216-190-00	METAL GLAZE 470 5% 1/8W	(736EE/X731/X821)
R725	1-249-417-11	CARBON 1K 5% 1/4W	F
R726	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R727	1-249-421-11	CARBON 2.2K 5% 1/4W	F (736EE/X731/X821)
R728	1-249-421-11	CARBON 2.2K 5% 1/4W	F (736EE/X821)
R729	1-249-421-11	CARBON 2.2K 5% 1/4W	F (736EE/X821)
R734	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R735	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R737	1-216-295-00	METAL CHIP 0 5% 1/10W	
R738	1-216-295-00	METAL CHIP 0 5% 1/10W	
R739	1-216-295-00	METAL CHIP 0 5% 1/10W	(836EE/K881/X831)
R748	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R749	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R750	1-216-097-00	METAL CHIP 100K 5% 1/10W	(736EE/X731/X821)
R751	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	(736EE/X731/X821)
R752	1-216-689-11	METAL CHIP 39K 0.5% 1/10W	(736EE/X731/X821)
R753	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	(736EE/X731/X821)
R754	1-216-089-00	METAL CHIP 47K 5% 1/10W	(736EE/X731/X821)
R755	1-216-089-00	METAL CHIP 47K 5% 1/10W	(736EE/X731/X821)
R756	1-216-049-00	METAL CHIP 1K 5% 1/10W	(736EE/X731/X821)
R757	1-216-043-00	METAL CHIP 560 5% 1/10W	(736EE/X731/X821)
R758	1-216-192-00	METAL CHIP 560 5% 1/8W	(736EE/X731/X821)
R759	1-216-192-00	METAL CHIP 560 5% 1/8W	(736EE/X731/X821)
R760	1-216-089-00	METAL CHIP 47K 5% 1/10W	(736EE/X731/X821)
R761	1-216-097-00	METAL CHIP 100K 5% 1/10W	(736EE/X731/X821)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
R762	1-216-073-00	METAL CHIP	10K	5%	1/10W	(736EE/X731/X821)
R763	1-216-089-00	METAL CHIP	47K	5%	1/10W	(736EE/X731/X821)
R764	1-216-097-00	METAL CHIP	100K	5%	1/10W	(736EE/X731/X821)
R765	1-216-073-00	METAL CHIP	10K	5%	1/10W	(736EE/X731/X821)
R766	1-216-089-00	METAL CHIP	47K	5%	1/10W	(736EE/X731/X821)
R767	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(736EE/X731/X821)
R768	1-216-222-00	METAL GLAZE	10K	5%	1/8W	(736EE/X731/X821)
R769	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	(736EE/X731/X821)
R770	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R771	1-216-049-00	METAL CHIP	1K	5%	1/10W	(736EE/X731/X821)
R772	1-216-049-00	METAL CHIP	1K	5%	1/10W	(736EE/X731/X821)
R774	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R775	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R776	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R777	1-216-295-00	METAL CHIP	0	5%	1/10W	
R778	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R779	1-216-041-00	METAL CHIP	470	5%	1/10W	(736EE/X731/X821)
R780	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	(736EE/X731/X821)
R781	1-216-041-00	METAL CHIP	470	5%	1/10W	(736EE/X731/X821)
R782	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	(736EE/X731/X821)
R783	1-216-041-00	METAL CHIP	470	5%	1/10W	(736EE/X731/X821)
R784	1-216-025-00	METAL CHIP	100	5%	1/10W	(736EE/X731/X821)
R785	1-216-025-00	METAL CHIP	100	5%	1/10W	(736EE/X731/X821)
R786	1-216-025-00	METAL CHIP	100	5%	1/10W	(736EE/X731/X821)
R787	1-216-093-00	METAL CHIP	68K	5%	1/10W	(736EE/X731/X821)
R788	1-216-079-00	METAL CHIP	18K	5%	1/10W	(736EE/X731/X821)
R790	1-216-295-00	METAL CHIP	0	5%	1/10W	
R791	1-216-107-00	METAL CHIP	270K	5%	1/10W	(736EE/X731/X821)
R792	1-216-107-00	METAL CHIP	270K	5%	1/10W	(736EE/X731/X821)
R793	1-216-107-00	METAL CHIP	270K	5%	1/10W	(736EE/X731/X821)
R794	1-216-295-00	METAL CHIP	0	5%	1/10W	
R796	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(736EE/X731/X821)
R797	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(736EE/X731/X821)
R798	1-249-429-11	CARBON	10K	5%	1/4W	(JW778)
R801	1-214-947-00	METAL	2.7M	1%	1/2W	
R810	1-249-417-11	CARBON	1K	5%	1/4W	F
R811	1-260-099-11	CARBON	1K	5%	1/2W	
R813	1-249-412-11	CARBON	390	5%	1/4W	F

< RF MODULATOR >

⚠RF701	1-467-605-11	MODULATOR, RF (RFU-2042)

< SWITCH >

S701	1-692-900-11	SWITCH, SLIDE (1-2)(AUTO M)

< TUNER >

⚠TU701	1-693-252-11	TUNER (BTF-2G402)(736EE/X731/X821)

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* A-6727-565-A RV-34 BOARD, COMPLETE (EXCEPT X731)
****

* A-6727-568-A RV-34 BOARD, COMPLETE (X731)
****

(Ref. No. 1, 000Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C001	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C002	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V
C003	1-124-465-00	ELECT	0.47uF	20%	50V
C004	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C005	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C006	1-124-257-00	ELECT	2.2uF	20%	50V
C007	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C008	1-163-102-00	CERAMIC CHIP	24PF	5%	50V
C009	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C010	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C011	1-124-463-00	ELECT	0.1uF	20%	50V
C012	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C013	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C014	1-124-465-00	ELECT	0.47uF	20%	50V
C015	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
C016	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C017	1-163-083-00	CERAMIC CHIP	1PF		50V
C018	1-126-163-11	ELECT	4.7uF	20%	50V
C019	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C020	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C022	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C024	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C025	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C026	1-126-157-11	ELECT	10uF	20%	16V
C027	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C028	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C029	1-124-465-00	ELECT	0.47uF	20%	50V
C030	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C031	1-124-638-11	ELECT	22uF	20%	10V
C032	1-126-162-11	ELECT	3.3uF	20%	50V
C033	1-124-638-11	ELECT	22uF	20%	10V
C034	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C036	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C038	1-163-087-00	CERAMIC CHIP	4PF		50V
C039	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C040	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C044	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C045	1-124-257-00	ELECT	2.2uF	20%	50V
C046	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C047	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C048	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C049	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C050	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C051	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C052	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C053	1-124-465-00	ELECT	0.47uF	20%	50V
C055	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C056	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C057	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C058	1-124-465-00	ELECT	0.47uF	20%	50V
C059	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C060	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C061	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C062	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C063	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C064	1-124-638-11	ELECT	22uF	20%	10V
C065	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C066	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C067	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C068	1-163-096-00	CERAMIC CHIP	13PF	5%	50V
C073	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C074	1-163-125-00	CERAMIC CHIP	220PF	5%	50V (X731)

Ref. No.	Part No.	Description			Remark
C075	1-163-117-00	CERAMIC CHIP	100PF	5%	50V (X731)
C075	1-163-129-00	CERAMIC CHIP	330PF	5%	50V (EXCEPT X731)
C079	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C081	1-163-091-00	CERAMIC CHIP	8PF		50V
C082	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C083	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C086	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C087	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C093	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C095	1-163-033-00	CERAMIC CHIP	0.022uF		50V (X731)
C096	1-163-129-00	CERAMIC CHIP	330PF	5%	50V (X731)
C098	1-124-638-11	ELECT	22uF	20%	10V
C099	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C101	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C102	1-163-130-00	CERAMIC CHIP	360PF	5%	50V
C120	1-124-638-11	ELECT	22uF	20%	10V
C121	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C203	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C204	1-126-154-11	ELECT	47uF	20%	6.3V
C205	1-126-163-11	ELECT	4.7uF	20%	50V
C206	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C207	1-124-638-11	ELECT	22uF	20%	10V
C208	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C209	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C260	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C261	1-124-584-00	ELECT	100uF	20%	10V (EXCEPT X731)
C262	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C263	1-163-038-00	CERAMIC CHIP	0.1uF		25V (EXCEPT X731)
C264	1-124-257-00	ELECT	2.2uF	20%	50V (EXCEPT X731)
C265	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C267	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C268	1-163-135-00	CERAMIC CHIP	560PF	5%	50V (EXCEPT X731)
C269	1-163-135-00	CERAMIC CHIP	560PF	5%	50V (EXCEPT X731)
C270	1-163-038-00	CERAMIC CHIP	0.1uF		25V (EXCEPT X731)

RV-34

Ref. No.	Part No.	Description			Remark
C273	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C274	1-163-038-00	CERAMIC CHIP	0.1uF		25V (EXCEPT X731)
C275	1-126-160-11	ELECT	1uF	20%	50V (EXCEPT X731)
C276	1-163-031-11	CERAMIC CHIP	0.01uF		50V (EXCEPT X731)
C278	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C701	1-124-638-11	ELECT	22uF	20%	10V (X731)
C702	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C705	1-124-638-11	ELECT	22uF	20%	10V (X731)
C801	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C802	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C803	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C804	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C805	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C806	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C807	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C808	1-124-584-00	ELECT	100uF	20%	10V
C809	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C810	1-124-584-00	ELECT	100uF	20%	10V
C811	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C812	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C813	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C814	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C815	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C816	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C817	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C819	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C822	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C826	1-124-229-00	ELECT	33uF	20%	10V
C827	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C829	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C830	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C836	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C838	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C839	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C840	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C841	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C842	1-126-160-11	ELECT	1uF	20%	50V
C843	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C844	1-126-153-11	ELECT	22uF	20%	6.3V
C845	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C846	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C901	1-163-091-00	CERAMIC CHIP	8PF		50V (EXCEPT X731)
C901	1-163-229-11	CERAMIC CHIP	12PF	5%	50V (X731)
C902	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C903	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C904	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C906	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C907	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C908	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C909	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C910	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C911	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C912	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C913	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C914	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C917	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C921	1-124-638-11	ELECT	22uF	20%	10V
C938	1-163-263-11	CERAMIC CHIP	330PF	5%	50V

< FILTER >

Ref. No.	Part No.	Description
CF201	1-527-943-00	FILTER, CERAMIC

< CONNECTOR >

Ref. No.	Part No.	Description
* CN001	1-573-829-11	CONNECTOR, BOARD TO BOARD 15P
CN002	1-573-834-11	CONNECTOR, BOARD TO BOARD 20P
* CN003	1-573-837-11	CONNECTOR, BOARD TO BOARD 5P
CN801	1-563-585-11	CONNECTOR, FLEXIBLE 8P (X731)
CN801	1-563-590-11	CONNECTOR, FLEXIBLE 13P (EXCEPT X731)
* CN802	1-564-029-00	PIN, CONNECTOR 4P
CN803	1-506-482-11	PIN, CONNECTOR 3P (EXCEPT X731)

< DIODE >

Ref. No.	Part No.	Description
D801	8-719-801-78	DIODE 1SS184
D802	8-719-801-78	DIODE 1SS184
D803	8-719-801-78	DIODE 1SS184
D901	8-719-951-22	IC IMN10

< DELAY LINE >

Ref. No.	Part No.	Description
DL001	1-415-668-31	DELAY LINE, ULTRASONIC
DL002	1-415-856-11	DELAY LINE, ULTRASONIC GLASS
DL003	1-415-728-31	DELAY LINE, 2H (ULTRASONIC)

< IC >

Ref. No.	Part No.	Description
IC001	8-759-183-95	IC HA118385FEB
IC002	8-759-710-07	IC NJM2234M
IC003	8-759-194-24	IC MSM7450MS-K
IC004	8-759-035-93	IC SC7S32F
IC201	8-759-199-28	IC BA7025F-E2
IC260	8-759-055-49	IC AN3327K (EXCEPT X731)

Ref. No.	Part No.	Description	Remark
IC701	8-759-075-70	IC TA75S393F-TE85L	
IC702	1-809-959-21	IC TME687 (X731)	
IC801	8-759-267-78	IC HA118191ANT	
		< JUMPER RESISTOR >	
JR022	1-216-295-00	METAL CHiP 0 5% 1/10W	
JR024	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR030	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L001	1-408-970-21	INDUCTOR 10uH	
L002	1-408-975-21	INDUCTOR 27uH	
L003	1-408-970-21	INDUCTOR 10uH	
L004	1-408-972-21	INDUCTOR 15uH	
L005	1-408-972-21	INDUCTOR 15uH	
L006	1-408-976-21	INDUCTOR 33uH	
L007	1-408-982-11	INDUCTOR 100uH	
L008	1-408-982-11	INDUCTOR 100uH	
L009	1-408-980-21	INDUCTOR 68uH	
L010	1-408-976-21	INDUCTOR 33uH	
L011	1-408-983-21	INDUCTOR 120uH	
L012	1-408-429-00	INDUCTOR 470uH	
L013	1-408-427-00	INDUCTOR 330uH	
L014	1-408-978-21	INDUCTOR 47uH	
L015	1-408-982-11	INDUCTOR 100uH	
L017	1-408-985-21	INDUCTOR 180uH	
L018	1-408-982-11	INDUCTOR 100uH	
L019	1-408-980-21	INDUCTOR 68uH (X731)	
L202	1-408-982-11	INDUCTOR 100uH	
L260	1-408-982-11	INDUCTOR 100uH (EXCEPT X731)	
L701	1-408-982-11	INDUCTOR 100uH (X731)	
L801	1-408-948-00	INDUCTOR 220uH	
L802	1-408-948-00	INDUCTOR 220uH	
L803	1-408-982-11	INDUCTOR 100uH	
L804	1-408-982-11	INDUCTOR 100uH	
L805	1-408-985-21	INDUCTOR 180uH	
L810	1-408-985-21	INDUCTOR 180uH	
L812	1-408-982-11	INDUCTOR 100uH	
L813	1-408-970-21	INDUCTOR 10uH	
L814	1-408-970-21	INDUCTOR 10uH	
L901	1-408-974-21	INDUCTOR 22uH	
L902	1-408-948-00	INDUCTOR 220uH	
L908	1-408-982-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q001	8-729-010-25	TRANSISTOR MSD601-RT1	
Q002	8-729-010-25	TRANSISTOR MSD601-RT1	
Q003	8-729-010-25	TRANSISTOR MSD601-RT1	
Q004	8-729-010-25	TRANSISTOR MSD601-RT1	

Ref. No.	Part No.	Description	Remark
Q005	8-729-421-19	TRANSISTOR UN2213	
Q006	8-729-010-25	TRANSISTOR MSD601-RT1	
Q007	8-729-010-05	TRANSISTOR MSB709-RT1	
Q011	8-729-010-25	TRANSISTOR MSD601-RT1	
Q012	8-729-421-19	TRANSISTOR UN2213	
Q013	8-729-010-25	TRANSISTOR MSD601-RT1	
Q014	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q016	8-729-424-56	TRANSISTOR UN211L	
Q018	8-729-424-18	TRANSISTOR UN2113	
Q021	8-729-421-19	TRANSISTOR UN2213	
Q027	8-729-421-19	TRANSISTOR UN2213	
Q028	8-729-421-19	TRANSISTOR UN2213	
Q029	8-729-421-19	TRANSISTOR UN2213	
Q030	8-729-421-19	TRANSISTOR UN2213	
Q031	8-729-424-08	TRANSISTOR UN2111	
Q032	8-729-421-19	TRANSISTOR UN2213	
Q033	8-729-421-19	TRANSISTOR UN2213 (X731)	
Q033	8-729-424-90	TRANSISTOR UN221L-TX (EXCEPT X731)	
Q034	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q035	8-729-421-19	TRANSISTOR UN2213 (X731)	
Q040	8-729-421-19	TRANSISTOR UN2213	
Q041	8-729-421-19	TRANSISTOR UN2213	
Q046	8-729-421-19	TRANSISTOR UN2213	
Q045	8-729-421-19	TRANSISTOR UN2213 (X731)	
Q047	8-729-421-19	TRANSISTOR UN2213	
Q048	8-729-421-19	TRANSISTOR UN2213	
Q049	8-729-421-19	TRANSISTOR UN2213	
Q051	8-729-421-19	TRANSISTOR UN2213	
Q055	8-729-421-19	TRANSISTOR UN2213	
Q201	8-729-010-25	TRANSISTOR MSD601-RT1	
Q810	8-729-421-19	TRANSISTOR UN2213	
Q811	8-729-921-12	TRANSISTOR 2SD1834	
Q815	8-729-421-19	TRANSISTOR UN2213	
Q816	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q817	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q818	8-729-421-19	TRANSISTOR UN2213	
Q819	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q820	8-729-010-25	TRANSISTOR MSD601-RT1	
Q821	8-729-010-25	TRANSISTOR MSD601-RT1	
Q822	8-729-421-19	TRANSISTOR UN2213	
Q840	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q841	8-729-216-21	TRANSISTOR 2SA1162Y-TE85L	
Q904	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q906	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q907	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q908	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q909	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q931	8-729-230-49	TRANSISTOR 2SC2712-YG	

RV-34

Ref. No.	Part No.	Description				Remark
Q939	8-729-424-08	TRANSISTOR	UN2111			
		< RESISTOR >				
R001	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R002	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R003	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R004	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R005	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R006	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R007	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R008	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R009	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R010	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R012	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R014	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R016	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R017	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R018	1-216-037-00	METAL CHIP	330	5%	1/10W	
R019	1-216-037-00	METAL CHIP	330	5%	1/10W	
R020	1-216-040-00	METAL GLAZE	430	5%	1/10W	
R021	1-216-038-00	METAL CHIP	360	5%	1/10W	
R022	1-216-041-00	METAL CHIP	470	5%	1/10W	
R023	1-216-041-00	METAL CHIP	470	5%	1/10W	
R024	1-216-035-00	METAL CHIP	270	5%	1/10W	
R025	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R027	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R029	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R030	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R031	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R035	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R040	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R041	1-216-046-00	METAL CHIP	750	5%	1/10W	
R042	1-216-043-00	METAL CHIP	560	5%	1/10W	
R043	1-216-043-00	METAL CHIP	560	5%	1/10W	
R044	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R045	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W	
R046	1-216-047-00	METAL CHIP	820	5%	1/10W	
R047	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R048	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R049	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R050	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R051	1-216-036-00	METAL CHIP	300	5%	1/10W	
R052	1-216-052-00	METAL CHIP	1.3K	5%	1/10W	
R053	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R055	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R056	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R057	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R058	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R059	1-216-037-00	METAL CHIP	330	5%	1/10W	
R060	1-216-043-00	METAL CHIP	560	5%	1/10W	
R061	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R062	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R065	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R069	1-216-047-00	METAL CHIP	820	5%	1/10W	
R070	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R071	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W	
R072	1-216-072-00	METAL CHIP	9.1K	5%	1/10W	
R075	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R077	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R078	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R079	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R080	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R081	1-216-073-00	METAL CHIP	10K	5%	1/10W	(X731)
R082	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R083	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R084	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R085	1-216-045-00	METAL CHIP	680	5%	1/10W	
R086	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R087	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R088	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R089	1-216-117-00	METAL CHIP	680K	5%	1/10W	
R091	1-216-041-00	METAL CHIP	470	5%	1/10W	(X731)
R091	1-216-295-00	METAL CHIP	0	5%	1/10W	(EXCEPT X731)
R092	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R093	1-216-047-00	METAL CHIP	820	5%	1/10W	
R094	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R099	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R102	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R111	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R113	1-216-295-00	METAL CHIP	0	5%	1/10W	
R115	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	
R119	1-216-066-00	METAL CHIP	5.1K	5%	1/10W	
R204	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R205	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R206	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R207	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R208	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R262	1-216-035-00	METAL CHIP	270	5%	1/10W	(EXCEPT X731)
R263	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	(EXCEPT X731)
R265	1-216-033-00	METAL CHIP	220	5%	1/10W	(EXCEPT X731)
R266	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	(EXCEPT X731)

Ref. No.	Part No.	Description	Remark
R267	1-216-035-00	METAL CHIP 270 5% 1/10W	(EXCEPT X731)
R268	1-216-097-00	METAL CHIP 100K 5% 1/10W	(EXCEPT X731)
R269	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R270	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R271	1-216-079-00	METAL CHIP 18K 5% 1/10W	(EXCEPT X731)
R276	1-216-073-00	METAL CHIP 10K 5% 1/10W	(EXCEPT X731)
R701	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R702	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R703	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R801	1-216-023-00	METAL CHIP 82 5% 1/10W	
R802	1-216-037-00	METAL CHIP 330 5% 1/10W	
R805	1-216-605-11	METAL CHIP 12 1% 1/10W	
R806	1-216-023-00	METAL CHIP 82 5% 1/10W	
R807	1-216-023-00	METAL CHIP 82 5% 1/10W	
R811	1-216-037-00	METAL CHIP 330 5% 1/10W	
R812	1-216-023-00	METAL CHIP 82 5% 1/10W	
R815	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R816	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R817	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R835	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R836	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R838	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R840	1-216-627-11	METAL CHIP 100 0.5% 1/10W	
R841	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R842	1-216-619-11	METAL CHIP 47 0.5% 1/10W	
R843	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R844	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R846	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R847	1-216-078-00	METAL GLAZE 16K 5% 1/10W	
R848	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R849	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R850	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R851	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R852	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R853	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R856	1-216-033-00	METAL CHIP 220 5% 1/10W	
R857	1-216-033-00	METAL CHIP 220 5% 1/10W	
R858	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R859	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R861	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R862	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R863	1-216-047-00	METAL CHIP 820 5% 1/10W	
R901	1-216-039-00	METAL CHIP 390 5% 1/10W	
R902	1-216-033-00	METAL CHIP 220 5% 1/10W	
R903	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R906	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R907	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R908	1-216-033-00	METAL CHIP 220 5% 1/10W	
R910	1-216-025-00	METAL CHIP 100 5% 1/10W	
R913	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R914	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R915	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R916	1-216-039-00	METAL CHIP 390 5% 1/10W	
R917	1-216-045-00	METAL CHIP 680 5% 1/10W	
R918	1-216-043-00	METAL CHIP 560 5% 1/10W	
R919	1-216-039-00	METAL CHIP 390 5% 1/10W	
R920	1-216-043-00	METAL CHIP 560 5% 1/10W	
R921	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R922	1-216-047-00	METAL CHIP 820 5% 1/10W	
R924	1-216-031-00	METAL CHIP 180 5% 1/10W	
R925	1-216-031-00	METAL CHIP 180 5% 1/10W	
R926	1-216-025-00	METAL CHIP 100 5% 1/10W	
R927	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R928	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R929	1-216-043-00	METAL CHIP 560 5% 1/10W	
R933	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R947	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R966	1-216-295-00	METAL CHIP 0 5% 1/10W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV001	1-238-856-11	RES, ADJ, CERMET 10K	
RV003	1-238-856-11	RES, ADJ, CERMET 10K	
RV004	1-238-856-11	RES, ADJ, CERMET 10K	
RV005	1-238-856-11	RES, ADJ, CERMET 10K	
RV006	1-238-857-11	RES, ADJ, CERMET 22K	
RV009	1-238-854-11	RES, ADJ, CERMET 2.2K	
RV201	1-238-852-11	RES, ADJ, CERMET 470	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T001	1-403-617-11	COIL, TANK	
T201	1-409-467-11	COIL (TRAP 7.8K)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remark
X001	1-760-118-21	VIBRATOR, CRYSTAL (4.43MHz)	
X002	1-760-119-11	VIBRATOR, CRYSTAL (3.58MHz)	

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* A-6720-620-A SK-44 BOARD, COMPLETE
****
(Ref. No. 1,000Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remark
C301	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C302	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C303	1-126-153-11	ELECT	22uF	20%	6.3V
C304	1-124-465-00	ELECT	0.47uF	20%	50V
C305	1-126-160-11	ELECT	1uF	20%	50V
C306	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C307	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C308	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C309	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C310	1-126-160-11	ELECT	1uF	20%	50V
C311	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C313	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C319	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C321	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C323	1-124-584-00	ELECT	100uF	20%	10V
C324	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C327	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C328	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C331	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C332	1-124-234-00	ELECT	22uF	20%	16V

< CONNECTOR >

* CN301	1-573-819-11	CONNECTOR, BOARD TO BOARD 5P			

< IC >

IC301	8-759-253-37	IC TL8828P			

< COIL >

L301	1-408-982-11	INDUCTOR 100uH			
L305	1-408-982-11	INDUCTOR 100uH			
L306	1-408-974-21	INDUCTOR 22uH			
L307	1-408-978-21	INDUCTOR 47uH			

< TRANSISTOR >

Q301	8-729-216-21	TRANSISTOR 2SA1162Y-TE85L			
Q302	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q304	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q305	8-729-216-21	TRANSISTOR 2SA1162Y-TE85L			
Q307	8-729-230-49	TRANSISTOR 2SC2712-YG			

< RESISTOR >

Ref. No.	Part No.	Description			Remark
R301	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R302	1-216-039-00	METAL CHIP	390	5%	1/10W
R303	1-216-045-00	METAL CHIP	680	5%	1/10W
R304	1-216-079-00	METAL CHIP	18K	5%	1/10W
R305	1-216-079-00	METAL CHIP	18K	5%	1/10W
R307	1-216-017-00	METAL CHIP	47	5%	1/10W
R308	1-216-049-00	METAL CHIP	1K	5%	1/10W
R316	1-216-045-00	METAL CHIP	680	5%	1/10W
R317	1-216-039-00	METAL CHIP	390	5%	1/10W
R318	1-216-295-00	METAL CHIP	0	5%	1/10W
R319	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R321	1-216-047-00	METAL CHIP	820	5%	1/10W
R322	1-216-043-00	METAL CHIP	560	5%	1/10W
R325	1-216-049-00	METAL CHIP	1K	5%	1/10W
R326	1-216-295-00	METAL CHIP	0	5%	1/10W

< VARIABLE RESISTOR >

RV301	1-238-855-11	RES, ADJ, CERMET 4.7K			

< VIBRATOR >

X301	1-577-381-11	VIBRATOR, CRYSTAL (14.318MHz)			

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* A-6720-623-A TU-150 BOARD, COMPLETE (836EE/K881/X831)
****
(Ref. No. 7,000Series)

< CAPACITOR >

C101	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C103	1-126-101-11	ELECT	100uF	20%	16V
C104	1-126-101-11	ELECT	100uF	20%	16V
C105	1-124-907-11	ELECT	10uF	20%	50V
C106	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C107	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C108	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C109	1-163-031-11	CERAMIC CHIP	0.01uF		50V (K881)
C110	1-126-101-11	ELECT	100uF	20%	16V
C111	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C113	1-126-101-11	ELECT	100uF	20%	16V
C115	1-126-233-11	ELECT	22uF	20%	50V
C116	1-126-101-11	ELECT	100uF	20%	16V
C120	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C121	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C122	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C123	1-130-483-00	MYLAR	0.01uF	5%	50V
C124	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C125	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C126	1-126-101-11	ELECT	100uF	20%	16V
C127	1-124-907-11	ELECT	10uF	20%	50V
C128	1-124-907-11	ELECT	10uF	20%	50V
C130	1-163-131-00	CERAMIC CHIP	390PF	5%	50V

Ref. No.	Part No.	Description		Remark	
C131	1-124-907-11	ELECT	10uF	20%	50V
C132	1-124-907-11	ELECT	10uF	20%	50V
C136	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C138	1-124-907-11	ELECT	10uF	20%	50V
C139	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C140	1-124-907-11	ELECT	10uF	20%	50V
C142	1-124-907-11	ELECT	10uF	20%	50V
C143	1-124-907-11	ELECT	10uF	20%	50V
C144	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C145	1-124-907-11	ELECT	10uF	20%	50V
C146	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C147	1-124-927-11	ELECT	4.7uF	20%	100V
C150	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C151	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C152	1-124-907-11	ELECT	10uF	20%	50V
C155	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C157	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C158	1-124-907-11	ELECT	10uF	20%	50V
C159	1-126-101-11	ELECT	100uF	20%	16V
C162	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C167	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C170	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C171	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C172	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
		< CONNECTOR >			
CN101	1-506-480-11	PIN, CONNECTOR 15P			
CN102	1-506-479-11	PIN, CONNECTOR 14P			
		< DIODE >			
⚠D101	8-719-110-78	DIODE	RD33ES-B2		
D102	8-719-800-76	DIODE	1SS226		
D103	8-719-104-34	DIODE	1S2836		
D103	8-719-914-44	DIODE	DAP202K		
D104	8-719-104-34	DIODE	1S2836		
D104	8-719-914-44	DIODE	DAP202K		
D105	8-719-104-34	DIODE	1S2836		
D105	8-719-914-44	DIODE	DAP202K		
		< FILTER >			
FL101	1-567-101-11	FILTER, CERAMIC			
FL102	1-567-100-00	FILTER, CERAMIC			
FL103	1-567-099-00	FILTER, CERAMIC			
		< IC >			
IC101	8-759-512-95	IC	TDA8415		
IC102	8-759-729-03	IC	NJM2903D		
IC104	8-759-145-58	IC	uPC4558C		

Ref. No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JR102	1-216-295-00	METAL CHIP	0	5%	1/10W(K881)
		< COIL >			
L102	1-408-421-00	INDUCTOR 100uH			
L103	1-408-409-00	INDUCTOR 10uH			
L104	1-408-409-00	INDUCTOR 10uH			
L105	1-408-409-00	INDUCTOR 10uH			
L106	1-408-409-00	INDUCTOR 10uH			
L107	1-408-421-00	INDUCTOR 100uH			
L108	1-408-409-00	INDUCTOR 10uH			
L109	1-408-409-00	INDUCTOR 10uH			
		< DECODER BLOCK >			
⚠NCM101	1-467-604-11	DECODER BLOCK, MPX (NCA-389B)			
		< TRANSISTOR >			
⚠Q104	8-729-173-38	TRANSISTOR	2SA733-K		
Q105	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q106	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q107	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q108	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q109	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q110	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q111	8-729-422-27	TRANSISTOR	2SD601A-Q		
		< RESISTOR >			
R103	1-216-295-00	METAL CHIP	0	5%	1/10W
R104	1-216-093-00	METAL CHIP	68K	5%	1/10W
R105	1-216-085-00	METAL CHIP	33K	5%	1/10W
R106	1-216-025-00	METAL CHIP	100	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-089-00	METAL CHIP	47K	5%	1/10W
R109	1-216-049-00	METAL CHIP	1K	5%	1/10W
R110	1-216-041-00	METAL CHIP	470	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W(K881)
R112	1-216-295-00	METAL CHIP	0	5%	1/10W
R114	1-216-043-00	METAL CHIP	560	5%	1/10W
R115	1-216-025-00	METAL CHIP	100	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-041-00	METAL CHIP	470	5%	1/10W
R118	1-216-295-00	METAL CHIP	0	5%	1/10W
R119	1-216-295-00	METAL CHIP	0	5%	1/10W
R120	1-216-089-00	METAL CHIP	47K	5%	1/10W
R121	1-216-097-00	METAL CHIP	100K	5%	1/10W
R122	1-216-097-00	METAL CHIP	100K	5%	1/10W
R123	1-216-097-00	METAL CHIP	100K	5%	1/10W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

TU-150 VR-43

Ref. No.	Part No.	Description				Remark
R124	1-216-246-91	METAL GLAZE	100K	5%	1/8W	
R125	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R127	1-216-043-00	METAL CHIP	560	5%	1/10W	
R128	1-247-807-31	CARBON	100	5%	1/4W	
R129	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R130	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R131	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R132	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R133	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R134	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R135	1-216-041-00	METAL CHIP	470	5%	1/10W	
R136	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R137	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R143	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R144	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R147	1-216-295-00	METAL CHIP	0	5%	1/10W	
R148	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R156	1-216-296-91	METAL GLAZE	0	5%	1/8W	
R159	1-216-041-00	METAL CHIP	470	5%	1/10W	
R160	1-216-041-00	METAL CHIP	470	5%	1/10W	
R163	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R170	1-216-025-00	METAL CHIP	100	5%	1/10W	
R172	1-216-033-00	METAL CHIP	220	5%	1/10W	
R173	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R174	1-216-025-00	METAL CHIP	100	5%	1/10W	
R176	1-216-295-00	METAL CHIP	0	5%	1/10W	
R177	1-249-417-11	CARBON	1K	5%	1/4W	F
R178	1-216-043-00	METAL CHIP	560	5%	1/10W	
R179	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R180	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R181	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R182	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R183	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R184	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R185	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R190	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R191	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R192	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R193	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R194	1-216-107-00	METAL CHIP	270K	5%	1/10W	
R195	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< VARIABLE RESISTOR >				
RV101	1-241-763-11	RES, ADJ, CARBON 4.7K				

Ref. No.	Part No.	Description				Remark
		< TUNER >				
⚠TU101	1-693-246-11	TUNER (BTF-3G504)				
		< VIBRATOR >				
X101	1-567-925-11	VIBRATOR, CRYSTAL				

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* A-6720-621-A VR-43 BOARD, COMPLETE (K881)

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(Ref. No. 8,000Series)

Ref. No.	Part No.	Description				Remark
		< CONNECTOR >				
CN701	1-563-585-11	CONNECTOR, FLEXIBLE 8P				
CN702	1-506-476-11	PIN, CONNECTOR 11P				
CN702	1-568-788-21	PIN, CONNECTOR 11P				
		< JUMPER RESISTOR >				
JR701	1-216-295-00	METAL CHIP	0	5%	1/10W	
JR703	1-216-296-91	METAL GLAZE	0	5%	1/8W	
JR704	1-216-296-91	METAL GLAZE	0	5%	1/8W	
		< RESISTOR >				
R701	1-216-295-00	METAL CHIP	0	5%	1/10W	
		< VARIABLE RESISTOR >				
RV701	1-223-611-11	RES, VAR, CARBON 10K (MIC VOL 1)				
RV702	1-223-611-11	RES, VAR, CARBON 10K (MIC VOL 2)				
RV703	1-223-611-11	RES, VAR, CARBON 10K (ECHO)				

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MISCELLANEOUS

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Ref. No.	Part No.	Description	Remark
1	1-467-611-11	SWITCH BLOCK, CONTROL (K881)	
1	1-467-611-21	SWITCH BLOCK, CONTROL (X831)	
1	1-467-611-31	SWITCH BLOCK, CONTROL (736EE)	
1	1-467-611-41	SWITCH BLOCK, CONTROL (X821)	
1	1-467-611-51	SWITCH BLOCK, CONTROL (X731)	
1	1-467-611-61	SWITCH BLOCK, CONTROL (836EE)	
65	1-558-924-21	CABLE, PIN (736EE/X821/X731)	1)
65	1-558-924-41	CABLE, PIN (836EE/K881/X831)	
260	1-543-647-11	HEAD, FE	
267	A-6761-129-C	HEAD BLOCK ASSY, ACE	
M901	8-848-618-11	DRUM ASSY DZH-54A (X731)	
M901	8-848-624-11	DRUM ASSY DZH-68A (EXCEPT X731)	
M902	8-835-489-01	MOTOR, DC U-26K (CAPSTAN)	81)
M904	X-3727-784-1	MOTOR ASSY (LOADING)	
S1	1-571-920-11	SWITCH, ROTARY (CAM ENCODER)	

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The components identified by
mark ⚠ or dotted line with mark
⚠ are critical for safety.
Replace only with part number
specified.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS ******************************	
	1-542-221-21	MICROPHNE (F-VJ3321)(K881)	
⚠	1-569-008-11	ADAPTER, CONVERSION 2P (K881/X731/X821/X31)	
	1-575-334-11	CORD, CONNECTION (AV CABLE 1.5m) (EXCEPT X731)	
⚠	1-696-562-11	CORD, POWER	
	1-696-593-11	CORD, CONNECTION (PAL)(AERIAL)	
	3-758-258-11	MANUAL, INSTRUCTION (ENGLISH, JAPANESE) (K881)	
	3-758-258-41	MANUAL, INSTRUCTION (ARABIC CHINESE)(K881)	
	3-758-258-51	MANUAL, INSTRUCTION (ENGLISH, JAPANESE) (X731/X821/X831)	
	3-758-258-61	MANUAL, INSTRUCTION (ARABIC, CHINESE, RUSSIAN)(X731/X821/X831)	
	3-758-258-71	MANUAL, INSTRUCTION (ENGLISH, CZECK) (736EE/836EE)	
	3-758-258-81	MANUAL, INSTRUCTION (POLISH, RUSSIAN) (736EE/836EE)	
*	3-957-935-01	CUSHION (LOWER)	
*	3-957-955-01	CUSHION (UPPER)	
*	3-958-899-01	INDIVIDUAL CARTON (836EE)	
*	3-958-899-11	INDIVIDUAL CARTON (736EE)	
*	X-3943-977-1	INDIVIDUAL CARTON ASSY (K881)	
*	X-3943-978-1	INDIVIDUAL CARTON ASSY (X731:E)	
*	X-3944-000-1	INDIVIDUAL CARTON ASSY (X831:E)	
*	X-3944-001-1	INDIVIDUAL CARTON ASSY (X821:E)	
*	X-3944-166-1	INDIVIDUAL CARTON ASSY (X731:Saudi Arabia)	
*	X-3944-167-1	INDIVIDUAL CARTON ASSY (X831:Saudi Arabia)	
*	X-3944-280-1	INDIVIDUAL CARTON ASSY (X821:Saudi Arabia)	

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HARDWARE LIST

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#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3
#2	7-621-255-25	SCREW +PTT 2X4 (S)
#4	7-682-645-01	SCREW +PS 3X4
#5	7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3
#6	7-682-548-04	SCREW +P 3X8
#7	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#10	7-628-254-05	SCREW +PS 2.6X5
#11	7-624-102-04	STOP RING 1.5, TYPE E
#13	7-682-546-04	SCREW +P 3X5

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 6

INTERFACE, IC PIN FUNCTION DESCRIPTION

6-1. SYSTEM CONTROL – VIDEO BLOCK INTERFACE

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB• PAUSE	SLOW	×2	CUE	REVIEW	REC	REC• PAUSE
$\overline{\text{V•PB}}$	MA-202 IC203 (95)	O	H	H	H	L	L	L	L	L	L	H	H
HEAD CONT	MA-202 IC203 (85)	O	L	L	L	L	HI-Z (2.5 V)	*1	*10	H	H	L	L
RF SW P (SW30)	MA-202 IC203 ①	O	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
Q VD/V MUTE	MA-202 IC203 ②	O	L	L	L	*3	*4	*4	*4	*4	*4	L	L
$\overline{\text{SP}}$	MA-202 IC203 (91)	O	*6	*6	*6	*7	*7	*7	*7	*7	*7	*6	*6
EP	MA-202 IC203 (92)	O	*11	*11	*11	*7	*7	*7	*7	*7	*7	*11	*11
LP	MA-202 IC203 (93)	O	*12	*12	*12	*7	*7	*7	*7	*7	*7	*12	*12
REC•P	MA-202 IC203 ⑤	O	L	L	L	L	L	L	L	L	L	L	H
REC	MA-202 IC203 (98)	O	L	L	L	L	L	L	L	L	L	H	H
V SYNC	MA-202 IC203 (66)	I	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8	*8
OSD MUTE	MA-202 IC203 (71)	O	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9
CTL REC	MA-202 IC203 (94)	O	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15	*15
E TAPE	MA-202 IC203 ㉘	O	H	H	H	*13	*13	*13	*13	*13	*13	L	L
$\overline{\text{NTSC}}$	MA-202 IC203 ㉗	O	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{3.58NTSC}}$	MA-202 IC203 ㉖	O	H	H	H	H	H	H	H	H	H	H	H
JOG	MA-202 IC203 (97)	O	L	L	L	L	H	H	H	H	H	L	L
ORC SETTEI	MA-202 IC203 (76)	O	L	L	L	L	L	L	L	L	L	*14	*14

*1. Foward slow mode: "HI-Z (2.5 V)" in tape stop, "L" in tape running (approx. 40 msec.).
Foward slow mode: "HI-Z (2.5 V)" in tape stop, "H" in tape running SP mode (approx. 40 msec.).
"L" in tape running EP mode (approx. 40 msec.).
*2. Synchronized with drum rotation. 25 Hz or 30Hz 50% duty pulse.
*3. Normally "L". "H" when CTL signal is not generated.
*4. V period "H" pulse.
*5. "H" in SP mode. "L" in LP/EP mode.
*6. Selected by REC mode. SP mode: "L".
*7. Selected by tape recording mode.

Model / Signal	SP	LP	EP
$\overline{\text{SP}}$ (91)	L	H	H
EP (92)	L	L	H
LP (93)	L	H	L

*8. Composite Sync signal (positive).
*9. "H" when menu screen or blue back screen.
*10. "HI-Z (2.5 V)" in LP/EP mode. "H" in SP mode.
*11. Selected by REC mode: "H" EP mode.
*12. Selected by REC mode: "H" LP mode.
*13. "L" when APC is off. "H" when APC is ON and "HG tape" is used.
*14. "H" during APC measurement.
*15. Selected by "PICTURE CONTROL" switch. "H" EDIT position.

6-2. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB•PAUSE	SLOW	×2	CUE	REVIEW	REC	REC•PAUSE	PB INDEX WRT/ERS
REC CTL	MA-202 IC203 ⑦	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	
$\overline{\text{CAP STOP}}$	MA-202 IC203 ㊳	O (O.D)	L	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	L	*3	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	HI-Z (O.D)	L	
STEP PLS	MA-202 IC203 ㉔	O	L	L	L	L	L	L	L	*2	L	L	L	L	L	
CTL REC	MA-202 IC203 ㉘	O	L	L	L	L	L	L	L	L	L	L	L	H	H	H
INDEX	MA-202 IC203 ㉚	O	L	L	L	L	L	L	L	L	L	L	L	L	L	H
PB CTL	MA-202 IC203 (67)	I	H/L	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H/L	
VD CTL	MA-202 IC203 (77)	I	H/L	*6	*6			*1	H/L	*2	*6	*6	*6	*1	H/L	
DRUM PG	MA-202 IC203 (68)	I	*4	*7	*7	*5	*5	*7	*7	*7	*7	*7	*7	*7	*7	
DRUM FG	MA-202 IC203 (69)	I	H/L	*8	*8	*5	*5	*8	*8	*8	*8	*8	*8	*8	*8	
CAP FG	MA-202 IC203 (70)	I	H/L	*6	*6	*5	*5	*6	H/L	*9	*6	*6	*6	*6	H/L	
CAP DA	MA-202 IC203 (73)	O	*10	*10	*10	*10	*10	*11	*10	*10	*11	*11	*11	*11	*10	
DRUM DA	MA-202 IC203 (74)	O	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	*12	
CTL STEP	MA-202 IC203 ㉙	O	L	L	L	L	L	L	L	*13	L	L	L	L	L	

*1. 30 Hz or 25 Hz pulse.
*2. Pulse at tape running.
*3. Reverse logic pulse of STEP PLS.
*4. "L" when drum rotation stop.
*5. Unstable period pulse.
*6. Pulse of period in proportion to tape speed.
*7. 30 Hz or 25 Hz pulse.
*8. 360 Hz or 300 Hz or 180/150 Hz pulse.
*9. Pulse at tape running.
*10. Approx. 2 msec period "H" or "L" pulse.
*11. Approx. 1.5 msec period "H" or "L" pulse.
*12. Approx. 3 msec period "H" or "L" pulse.
*13. "H" when FWD direction STEP drive.

6-3. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE

Signal	Pin No.	I/O	HI-SPEED REW	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREADING	TAPE UNTHREADING	STOP	FF	REW	PB	PB• PAUSE	SLOW	×2	CUE	REVIEW	REC	REC• PAUSE
CAM *1	MA-202 IC203 ⑫	O	L	L	L	L	H	H	L	L	L	L	L	L	L	L	L	L	L
LOAD	MA-202 IC203 ⑭	O	L	L	H	H	L	L	L	L	L	L	L	L	L	L	L	L	L
CW/CCW	MA-202 IC203 ⑬	O			H	L	H	L											
MODE 1	MA-202 IC203 (58)	I	H	L	L	L	H	H	L	H	H	H	L	L	H	H	H	H	L
MODE 2	MA-202 IC203 (57)	I	L	H	H	H	H	H	L	L	L	L	H	H	L	L	L	L	H
MODE 3	MA-202 IC203 (56)	I	H	H	H	H	L	L	L	L	L	H	H	H	H	H	L	H	H
MODE 4	MA-202 IC203 (55)	I	H	H	H	H	H	H	L	H	H	L	L	L	L	L	L	L	L
REC PRF	MA-202 IC203 ⑮	I	*2	L	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
C-UP/DOWN	MA-202 IC203 ⑯	I	L	H	H→L	L→H	L	L	L	L	L	L	L	L	L	L	L	L	L
TREEL FG	MA-202 IC203 (64)	I	*3	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
SREEL FG	MA-202 IC203 (63)	I	*3	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
END LED	MA-202 IC203 ㉜	O (O.D)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
CAP TRQ 1	MA-202 IC203 ㉞	O (O.D)	*1							*1	*1			*6		*1	*1		
CAP TRQ 2	MA-202 IC203 ㉝	O (O.D)								*1	*1								
CAP RVS	MA-202 IC203 (72)	O	H	H			L	H	H/L	L	H	L	L	L/*5	L	L	H	L	L
T SENS	MA-202 IC203 ⑰	I	*7	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
S SENS	MA-202 IC203 ⑱	I	*7	*4	*4	*4	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7

*1. "L" when mechanism mode transition.
*2. "L" when erasing protection tab is bent, "H" when not bent.
*3. Pause of period in proportion to reel rotating speed.
*4. Approx. 2 msec period "H" pulse.
*5. Pulse at tape running.
*6. "L" when tape running and CAP RVS is "H".
*7. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.

6-4. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE

Signal	Pin No.	I/O	I/O level
$\overline{\text{COSMO•RESET}}$	MA-202 IC203 ㊵	I	Normally "H". "L" when service interruption is detected or restored.
$\overline{\text{COSMO•CS}}$	MA-202 IC203 ㊹	I	Chip select signal from timer microprocessor. V period "L" pulse.
SI•BUS	MA-202 IC203 ㊺	I	Serial communication data from timer microprocessor. V period "L" pulse.
SO•BUS	MA-202 IC203 ㊻	O	Serial communication data to timer microprocessor. V period "L" pulse.
S CLK	MA-202 IC203 ㊼	I	Serial communication clock with timer microprocessor. V period "L" pulse.

6-5. SYSTEM CONTROL – AUDIO BLOCK INTERFACE

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE LOADING	TAPE UNLOAD-ING	PB	PB• PAUSE	SLOW	×2	CUE	REVIEW	REC	REC• PAUSE
AF ENVELOP	MA-202 IC203 (61)	I	AF RF envelope signal input terminal for automatic tracking.										
NA PB	MA-202 IC203 ⑪	O	L	L	L	H	H	H	H	H	H	L	L
A MUTE	MA-202 IC203 ㊲	O (O.D)	L	L	L	*1	H	H	H	H	H	L	L
$\overline{\text{SP}}$	MA-202 IC203 (91)	O	*2	*2	*2	*3	*3	*3	*3	*3	*3	*2	*2
NA REC•$\overline{\text{P}}$	MA-202 IC203 ⑩	O	L	L	L	L	L	L	L	L	L	H	L
AF REC•$\overline{\text{P}}$	MA-202 IC203 ④	O	L	L	L	L	L	L	L	L	L	H	L
AF SWP	MA-202 IC203 (100)	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
AF SW POSITION	MA-202 IC203 (51)	I	Input terminal for AF switching position adjustment.										
FULL $\overline{\text{ERS}}$	MA-202 IC203 ㊱	O (O.D)	H	H	H	H	H	H	H	H	H	L	H

*1. 30 Hz 50% duty pulse approx. 5 msec delayed from RF SW P.
*2. Selected by REC mode selector. SP mode: "L".
*3. Selected by tape recording mode. SP mode: "L".

6-6. SYSTEM CONTROL AND RF MODULATOR – INPUT SELECTION BLOCK INTERFACE

Signal	Pin No.	I/O	I/O level
LINE 1	MA-202	O	*1. Input select control signal.
LINE 2	MA-202 IC203 (82)	O	

*1.

Input / Signal	Tuner	LINE 1	LINE 2
LINE 1 (79)	L	H	L
LINE 2 (82)	L	L	H

6-7. SERVO/SYSTEM CONTROL MICROPROCESSOR PIN FUNCTION (MA-202 BOARD IC203 CXP80732-014Q) (HiFi), CXP80732-012Q (MONO)

Pin No.	Pin Name	I/O	Function
1	RF SWP	O	Video switching pulse output
2	Q VD	O	Quasi VD pulse output
3	Q HD ENBL	O	Quasi HD voltage level control
4	AF REC P	O	"H" output when hi-fi audio REC
5	RECP	O	"H" output when video REC•PAUSE
6	FE ON	O	Flaying erase ON/OFF
7	REC CTL	O	REC CTL output
8	INT VD	O	Internal VD signal. Not used
9	SKEW ON	O	"H" dering NTSC PB JOG
10	CHOI MODO SI	O	"L" when "rewind a lottle" Command is in
11	NA PB	O	"H" when normal audio playback
12	CAM	O	CAM motor select
13	CW	O	Clockwise/counterclockwise signal output
14	LOAD	O	Loading motor select
15	CIN/REC PRF	I	Erasing protection tab, cassette IN detection input
16	C DOWN	I	Cassette up/down detection input
17	T SENS	I	Take up end sensor input
18	S SENS	I	Supply end sensor input
19	MOD CONT	O	RF modulator ON/OFF control
20	AV CONT	O	Not used
21	MESECAM	I/O	ME SECAM : "H" out, Force NTPB : "L" out, Force SECAM PB: "L" out
22	SECAM	I/O	SECAM : H in
23	VIDE MUTE	O	Not used
24	STEP PLS	O	"H" when capstan step drive
25	3.58/4.43 NTSC	O	"L"
26	3.58 NTSC	O	"H"
27	NTSC	O	"H"
28	E-TAPE	O	"H" when HG tape using
29		O	Not used
30		O	Not used
31		O	Not used
32	END LED	O	END sensor LED drive output
33	CAP TPQ2	O	Capstan current control. "L" when FF/REW ➡ stop
34	CAP TPQ1	O	Capstan current control. "L" when slow down
35	PAL	O	"H"
36	FULL ERS	O	"L" when full erase head operation
37	A MUTE	O	Audio MUTE output
38	CAP STOP	O	Capstan STOP signal output
39	MP	I	Fixed at "L" level
40	COSMO RST	I	System reset input
41			GND
42	XTAL		System clock 12 MHz
43	EXTAL		
44	COSMO CS	I	Chip select signal
45	SI0	I	Signal for serial communication
46	SO0	O	
47	SCLK	I	
48	L METER	I	Not used
49	R METER	I	Not used

Pin No.	Pin Name	I/O	Function
50	NT PB SW	I	3.58/4.43/ON PAL TV input
51	AF SW POSI	I	VR input for hi-fi switching pulse position adjustment
52	AVss		GND
53	AVREF		AD port reference input. UNSW 5 V
54	AVDD		UNSW 5 V
55	MODE4	I	Mechanism section CAM encoder input
56	MODE3	I	
57	MODE2	I	
58	MODE1	I	
59	DEW	I	DEW sensor input. Not used
60	RF ENV	I	Video RF envelope input
61	AF ENV	I	hi-fi audio RF envelope input
62	RF SW POSI	I	VR input for RF switching position adjustment
63	SREEL FG	I	S reel sensor input
64	TREEL FG	I	T reel sensor input
65	NT JUDGE	I	Not used
66	V SYNC	I	Composite sync input
67	PB CTL	I	Playback CTL input
68	DRM PG	I	Drum PG input
69	DRM FG	I	Drum FG input
70	CAP FG	I	Capstan FG input
71	OSD MUTE	O	V MUTE is out to OSD IC
72		O	Not used
73	CAP D/A	O	Capstan error D/A output
74	DRM D/A	O	Drum error D/A output
75	EP	O	"L" when EP mode REC
76	ORC SETTEI	O	"H" when ORC measurement
77	VD CTL	I	Playback CTL input
78	AMS IN	I	KARAOKE AMS input. No sound position detacting signal is in
79	LINE1	O	Video/audio input select signal
80	1	O	Expansion port for serial communication
81	SCK1	O	
82	LINE2	O	Video/audio input select signal
83	NA REC P	I/O	"H" when recording normal audio
84	CAP RVS	O	Capstan reverse signal output
85	HEAD CONT	I/O	Head select control
86		I	Not used
87		O	Not used
88			GND
89			UNSW 5 V
90			Connected to UNSW 5 V
91	SP	O	"L" when SP mode
92	ENV GAIN	O	RF envelope gain control
93	CTL STEP	O	CTL amp step control
94	CTL REC	O	CTL amp recording inhibition
95	V PB	O	"L" when video playback
96	CTL INDEX	O	CTL amp index control
97	JOG	O	"H" when trick play mode
98	REC	O	Rise up signal of head amp recording power
99	LP HEAD	O	(PAL) Head select control
100	AF SWP	O	hi-fi switching pulse output

6-8. TIMER, TUNER, MODE CONTROL MICROPROCESSOR PIN FUNCTION (MF-246 BOARD IC101 MB89096-126)

Pin No.	Pin Name	I/O	Function
1	CL1		Connected to sub oscillator for clock
2	CL0		Connected to sub oscillator for clock
3	MOD0		Ground
4	MOD1		Ground
5	X0		Connected to main oscillator
6	X1		Connected to main oscillator
7	Vss		Ground
8	RESET	I	Reset signal in
9	STEREO DET	I	Not used
10	V DET	I	Not used
11	PAL/NTSC	O	CG control signal output
12	F MONO	O	Not used
13	H DET	I	H det signal in
14	TU CONT 0	O	Tuner control 0
15	COSMO RESET	O	System controller reset signal
16	CG CS	O	Character generator chip select signal
17	POWER FAIL	I	Power failure detect signal in
18	V SYNC	I	V sync. signal in
19	POWER CONT	O	Power ON/OFF control signal
20	COSMO CS	O	System controller chip select signal
21	TA MUTE	O	Tuner audio signal muting signal is out
22	FF LED	O	FF LED signal
23	SCL	I/O	I²C bus clock
24	SDA	I/O	I²C bus data
25	REW LED	O	REW LED
26	H.S REO LED	O	HI-SPEED REW LED
27	PAUSE LED	O	PAUSE RED
28	CMOD		Ground
29	PLL CLK	O	Tuner clock signal
30	PLL DATA	O	Tuner data signal
31	PLL ENABLE	O	Tuner enable signal
32	SIRCS IN	I	SIRCS signal in
33	FWD LED	I	FWD LED
34	RVS LED	I	RVS LED
35	TUN SYSTEM 0	O	Tuner system signal out 0
36	TUN SYSTEM 1	O	Tuner system signal out 1
37	TUN CONT 1	O	Tuner control 1
38	TUN CONT 2	O	Tuner control 2
39 – 48	SEG 0 – 9		VFP segment 0 – 9
[illegible]	Vcc		Power supply
54 – 52	SEG 10 – 12		VFP segment 10 – 12
53	Vfpd		Pull-down power supply
54 – 57	SEG 13 – 16		VFP segment 13 – 16
58	Vss		Ground
59 – 61	SEG 17 – 19		VFP segment 17 – 19
62 – 66	GRID 7 – 11	O	VFP grid 7 – 11
67	Vcc	O	Power supply
68 – 74	GRID 0 – 6	I	VFP grid 0 – 6
75	KARAOKE CS	O	Karaoke microcomputer chip select signal
76	KA MUTE	O	Karaoke audio signal muting
77	SI BUS	I	Serial data input
78	SO BUS	O	Serial data output
79	S CLK	O	Clock for serial communication
80	MEM CS	O	E² PROM chip select signal
81	MEM CLK	O	E² PROM clock
82	MEM DATA	O	E² PROM data
83	AVss		Ground for analog circuit
84	AFT	I	Tuner AFT input
85 – 91	A/D 1 – 7	I	Key reading A/D input
92	AVcc		Power supply for analog circuit
93	FWD	O	Key reading A/D input
94	DEST 1	I	Destination discriminating A/D input
95	DEST 2	I	Destination discriminating A/D input
96	KARAOKE ECHO	O	Echo level A/D input
97	REC LED		REC LED
98	TIMER	O	TIMER LED
99	BUZZER	O	Buzzer out
100	Vcc		Power supply

- TunCtl 0 (pin 14)/TunCtl 1 (pin 37)/TunCtl 2 (pin 38)

TUNER MONO SLV-736EE/X731/X821

	I	DK	BG	M
⑭ TunCtl 0	1	0	0	0
㊲ TunCtl 2	1	1	0	0
㊳ TunCtl 3	0	0	0	1

TUNER STEREO SLV-836EE/K881/X831

	I	DK	BG	M
⑭ TunCtl 0	0	1	1	0
㊲ TunCtl 2	0	0	1	1
㊳ TunCtl 3	0	0	0	1

- CG CONTROL SIGNAL OUTPUT
  H : PAL
  L : NTSC

				OUT (PAL/NTSC)
Hdet	NT/PAL_: NT	EE SYSTEM	NTSC358/443_: NTSC358	NTSC
			NTSC358/443_: NTSC443	PAL
		PB SYSTEM	NTPB SEL : NTSC358	NTSC
			NTPB SEL : NTSC443	PAL
			NTPB SEL : ON PAL	PAL
	NT/PAL_: PAL			PAL
No Hdet	NTPB SEL : NTSC358			NTSC
	NTPB SEL : NTSC443			PAL
	NTPB SEL : ON PAL			PAL

- TUNER SYSTEM SIGNAL OUTPUT

	BG	I	DK
㉟ Tun System 0	1	0	0
㊱ Tun System 1	0	1	0

* M select is controlled by the servo/system control microprocessor.

6-9. DIGITAL SOUND PROCESSOR CONTROL MICROPROCESSOR (SLV-K881)
(KR-24 BOARD IC201 CXP50112-441Q)

Pin No.	Pin Name	I/O	Function
1 – 28	N. C.	O	Connected to ground
29	$\overline{\text{KARAOKE}}$ $\overline{\text{CS}}$	I	Chip select signal input
30	N. C.		Not used
31	TEX	I	Conected to V_{DD}
32	$\overline{\text{RST}}$	I	Rest signal input
33	N. C.		Not used
34	V_{DD}		Power supply
35 – 42	N. C.	O	Connected to ground (Pin ㊴ via resistor)
43	$\overline{\text{EC}}$	I	Connected to V_{DD}
44	$\overline{\text{COM SC}}$	I	Clock for serial communication input
45	COM SO	O	Serial data output
46	COM SI	I	Serial data input
47	$\overline{\text{SIAK}}$	I	D.S.P. serial input executing signal input
48	DSP SO	O	D.S.P. serial data output
49	DSP SCK	O	D.S.P. serial clock output
50	$\overline{\text{SRDY}}$	O	Ready signal that informs D.S.P. serial data input is over input
51	$\overline{\text{SIRQ}}$	O	D.S.P. serial input request signal output
52	N. C.	O	Connected to ground
53	$\overline{\text{KARA}}$/NORM	O	"L" when KARAOKE mode
54	$\overline{\text{REST}}$	O	D.S.P. reset signal output
55	ASSISTNT VO	O	"H" when Assistant vocal mode
56	KARA/$\overline{\text{NORM}}$	O	"H" when KARAOKE mode
57	$\overline{\text{CHOI MODOSHI}}$	O	"L" during rewinding a little (doing CHOI-MODOSHI)
58	KEY VO/SO	O	KEY/VOICE output. Not used
59, 60	N. C.	O	Not used
61	WP	I	Connected to V_{DD}
62	RMC	I	Connected to V_{DD}
63 – 70	N. C.	O	Connected to ground
71	V_{SS}		Ground
72	XTAL		Connected oscillator
73	N. C.		Not used
74	EXTAL	I	Connected to oscillator
75	V_{DD}		Power supply
76 – 80	N. C.	O	Conncted to ground

SECTION 7
ADJUSTMENTS

During the adjustment, see the Parts Arrangement Diagram for adjustments on Page 7-8.

7-1. MECHANICAL ADJUSTMENTS

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT Ⅱ.

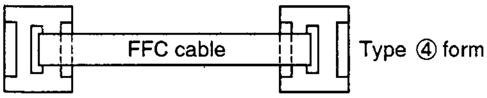
7-2. ELECTRICAL ADJUSTMENTS

2-1. PRE-ADJUSTMENT PREPARATIONS

Necessary items and indications for total adjustment of electric circuit of this machine will be described in this chapter.

2-1-1. Instruments to be Used

1) Color TV
2) Oscilloscope 1 or 2 phenomena, band more than 30 MHz, delay mode, as provided.
3) Frequency counter (min. 8 digits)
4) PAL SECAM, and NTSC pattern generators
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Alignment tape
   Part Code: H7099052H (MH-2)
10) Extension cables (See page 7-2 for using location)


FFC cable
Type ④ form

① HF-34 (CN101) ↔ MA-202 (CN406)
(11 pins J-6090-047-A)
② HF-34 (CN102) ↔ MA-202 (CN405)
(11 pins J-6090-047-A)
③ RV-34 (CN001) ↔ MA-202 (CN303)
(15 pins J-6090-050-A)
④ RV-34 (CN002) ↔ MA-202 (CN304)
(20 pins J-6090-043-A)

2-1-2. Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

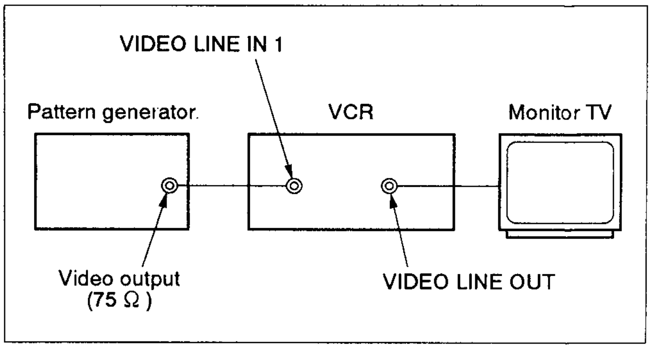

VIDEO LINE IN 1
Pattern generator
VCR
Monitor TV
Video output
(75 Ω)
VIDEO LINE OUT

Fig. 7-2-1.

2-1-3. Set-up Adjustment

In this adjustment, PAL pattern generator is connected with LINE 1 input signal terminal. When check to tuner, connected AERIAL terminal. Check that the amplitudes of video signal SYNC signal, of picture portions, and of burst signals are flat at approximately 0.3, 0.7 and 0.3 V, respectively, and that the level ratio of the burst sigal and "red" signal are 0.30 : 0.66. Fig. 7-2. shows video signals (color bars) used in adjusting the video section.

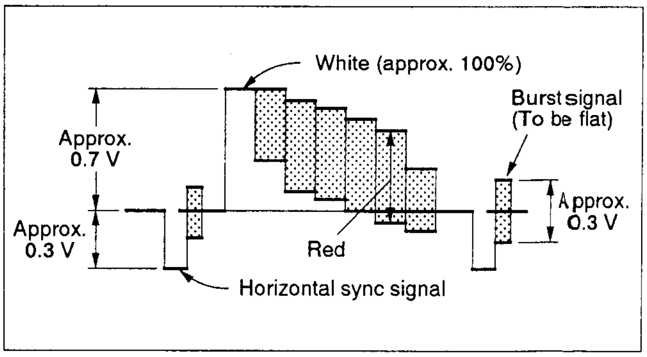

White (approx. 100%)
Burst signal
(To be flat)
Approx.
0.7 V
Approx.
0.3 V
Approx.
0.3 V
Red
Horizontal sync signal

Fig. 7-2-2.

2-1-4. Alignment Tape (MH-2)

	Time	Video signal	Audio signal
1	10 minutes	Stair-step	6 kHz
2	5 minutes	—	3 kHz
3	10 minutes	Color bar	1 kHz
4	3 minutes	RF sweep	—

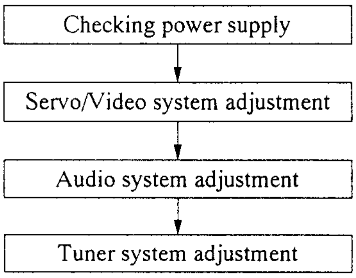
2-1-5. Specified I/O Level and Impedance

Input/output terminal

Video inputs	LINE IN : phono jacks 1 Vp-p, 75 Ω , unbalanced, sync negative
Audio inputs	LINE IN : phono jacks 47 kΩ , − 7.5 dBs (0 dBs = 0.775 Vrms) More than 10 kΩ , − 4 dBs
Video outputs	LINE OUT : phono jack 1 Vp-p, 75 Ω , unbalanced, sync negative
Audio outputs	LINE OUT : phono jack − 7.5 dBs at load impedance 47 kΩ Output impedance : less than 10 kΩ

2-1-6. Adjusting Sequence

Make the electrical adjustment in the following sequence.


Checking power supply
Servo/Video system adjustment
Audio system adjustment
Tuner system adjustment

2-2. POWER SUPPLY CHECK (PT-97 BOARD)

Mode	E-E
Measuring Instrument	Digital voltmater
D6 V check	
Measurement Point	Pin ① of CN701
Specified Value	5.9 ± 0.2 Vdc
MTR 12 V check	
Measurement Point	Pin ⑮ of CN701
Specified Value	12.4 ± 0.5 Vdc
SW 9 V check	
Measurement Point	Pin ⑲ of CN701
Specified Value	9.0 ± 0.3 Vdc
AN 12 V check	
Measurement Point	Pin ⑧ of CN702
Specified Value	12.0 ± 0.3 Vdc
UNSW − 13 V check	
Measurement Point	Pin ⑨ of CN702
Specified Value	− 13.0 ± 0.8 Vdc
UNSW 5.0 V check	
Measurement Point	Pin ⑪ of CN702
Specified Value	5.3 ± 0.2 Vdc
+35 V check	
Measurement Point	Pin ⑤ of CN705
Specified Value	35.0 ± 3.0 Vdc

Checking Method:

1) Confirm that each voltage meets its specified value.

2-3. SERVO/VIDEO SYSTEM ADJUSTMENTS

- **NOTE ON REPAIRING RV-34 BOARD**

  [Servicing Jig]

  MA-202 ↔ RV-34 Extension cable.

  ⓐ 15 pins (J-6090-050-A) CN303 ↔ CN001

  ⓑ 20 pins (J-6090-043-A) CN304 ↔ CN002

① There are two types of the connectors between MA-202 and RV-34 boards according to the manufacturing companies (TAIKO or MOLEX). They are not interchangeable.

② Servicing jigs are for common use. When using it, please be sure to confirm the form of connectors.

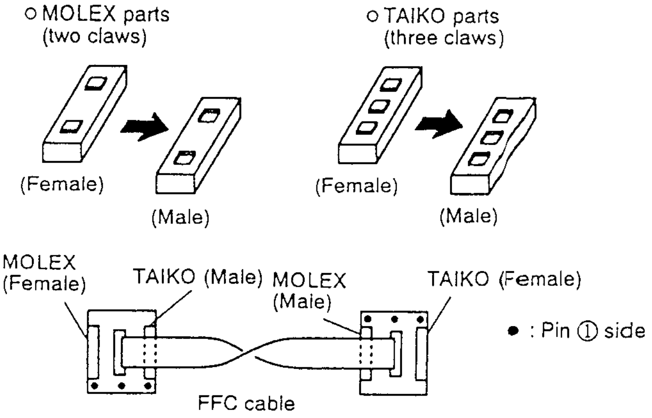

○ MOLEX parts (two claws)
○ TAIKO parts (three claws)
(Female)
(Male)
(Female)
(Male)
MOLEX (Female)
TAIKO (Male)
MOLEX (Male)
TAIKO (Female)
● : Pin ① side
FFC cable

Fig.7-2-3

- EXTENSION CABLE USING LOCATION

  (See page 7-1 for details of extension cables.)

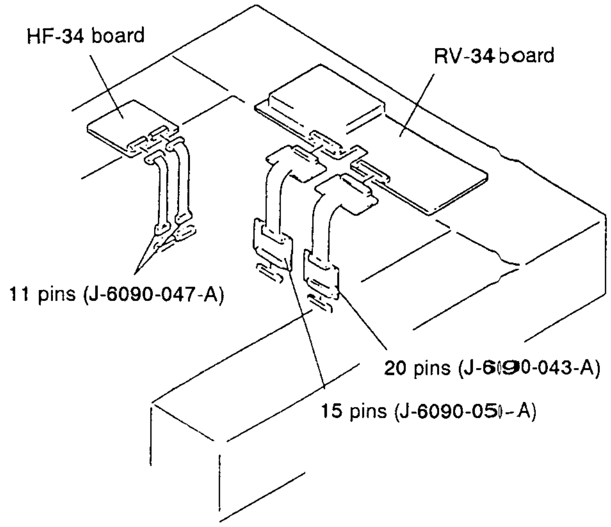

HF-34 board
RV-34 board
11 pins (J-6090-047-A)
20 pins (J-6090-043-A)
15 pins (J-6090-050-A)

Fig.7-2-4

2-3-1. Switching Position Adjustment (MA-202 Board)

Purpose:

Adjust the interval between A ch and B ch of tape playback output.

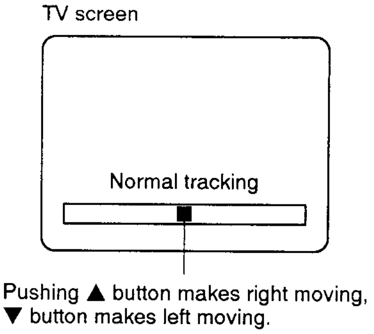
Improve the interchangeability with other tapes and sets.

When it is out of order, the interval appears on the screen, the screen is disturbed.

Mode	PB
Signal	Alignment tape
Measurement Point	CH1: CJ601 VIDEO LINE OUT (IO-51 board) CH2: Pin ⑳ of CN304 (RF SWP)
Measuring Instrument	Oscilloscope
Adjusting Element	RV202
Specified Value	6.5 ± 0.5 H (416 ± 32 μsec)

Adjusting Method:

1) Adjust the tracking position to the center by pushing tracking buttons ▲, ▼ (on remote commander).
2) Check that switching position is 6.5 ± 0.5 H. (416 ± 32 μsec)
   If not meet the specified value, turn RV202 and repeat steps 1) to 2).


TV screen
Normal tracking
Pushing ▲ button makes right moving,
▼ button makes left moving.

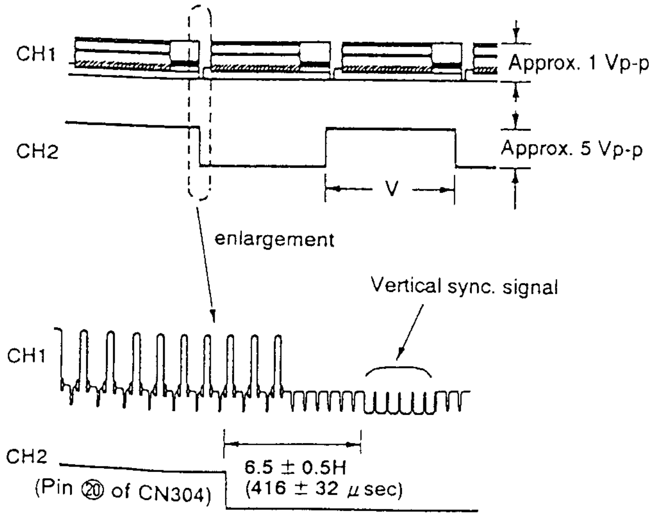

CH1
Approx. 1 Vp-p
CH2
Approx. 5 Vp-p
V
enlargement
Vertical sync. signal
CH1
CH2
(Pin ⑳ of CN304)
6.5 ± 0.5H
(416 ± 32 μsec)

Fig. 7-2-5.

2-3-2. Sync. AGC Adjustment (RV-34 Board)

Mode	E-E
Signal	Color bar
Measurement Point	CJ601 VIDEO LINE OUT (IO-51 board)
Measuring Instrument	Oscilloscope
Adjusting Element	RV001
Specified Value	1.00 ± 0.05 Vp-p

Note: VIDEO LINE OUT terminal must be terminates at 75Ω.

Adjusting Method:

1) With RV001, adjust the VIDEO signal level to 1.00 ± 0.05 Vp-p.

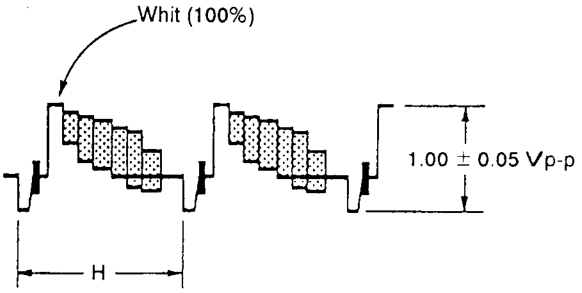

Whit (100%)
1.00 ± 0.05 Vp-p
H

Fig. 7-2-6

2-3-3. White Clip Adjustment (RV-34 Board)

Purpose:

Adjust the frequency of FM modulated YFM signal doesn't go too high.

When it is out of order, white goes flat and black is over-modulated.

Signal	Color bar
Measurement Point	Pin ㊺ of IC001
Measuring Instrument	Oscilloscope
Adjusting Element	RV004
Specified Value	White clip : 180 ± 5% Dark clip : 50 ± 10%

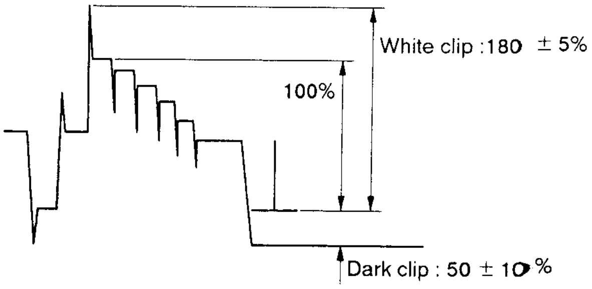

White clip :180 ± 5%
100%
Dark clip : 50 ± 10%

Fig. 7-2-7.

2-3-4. Recording Chroma Adjustment (RV-34 Board)

Purpose:

Adjust recording chroma level.

When it is out of order, S/N ratio of color goes bad, the picture is not colored and second sequence beat appears.

Mode	E-E
Signal	Color bar
Measurement Point	Q013 Emitter
Measuring Instrument	Oscilloscope
Adjusting Element	RV009
Specified Value	130 ± 10 mVp-p

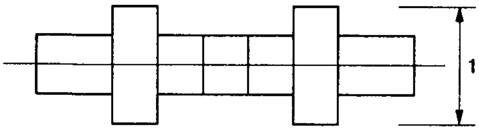


Fig.7-2-8

Reference:

Adjusting level is low; Bad color S/N ratio, not colored.

Adjusting level is high; Second sequence beat (squared noise) appears.

2-3-5. Playback Level Adjustment (RV-34 Board)

Purpose:

Adjust playback video signal level to the specification.

When it is out of order, the picture is darkened or brightened on TV screen. White goes flat.

Mode	Playback
Signal	Color bar or alignment tape
Measurement Point	VIDEO LINE OUT
Measuring Instrument	Oscilloscope
Adjusting Element	RV003
Specified Value	1.0 ± 0.02 Vp-p

Note : Video Output terminal must be terminated at 75 Ω.

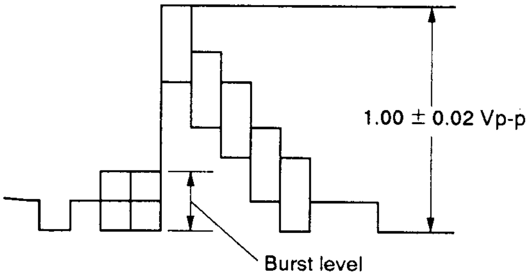


Fig.7-2-9

Reference:

Adjusting level is low; The picture is darkened on TV screen.

Adjusting level is high; The picture is brightened on TV screen. White goes flat.

2-3-6. Carrier Deviation Adjustment (RV-34 Board)

Purpose:

Adjust FM modulating frequency for signal.

When it is out of order, black and white are over-modulated, interchangeability is lack, the screen is darkened or brightened or off.

This adjustment should be done after checking 2-3-5. Playback Level Adjustment is satisfied.

Carrier Set	
Mode	E-E
Signal	None
Measurement Point	Emitter of Q034
Measuring Instrument	Frequency Counter
Adjusting Element	RV006
Specifed Value	3.80 ± 0.05 MHz
Deviation	
Mode	REC. PB
Signal	Color bar
Measurement Point	VIDEO LINE OUT
Measuring Instrument	Oscillosope
Adjusting Element	RV005
Specifed Value	1.00 ± 0.02Vp-p

Note : Video Output terminal must be terminated at 75 Ω.

Adjusting Method:

1) Set to E-E mode in the no signal condition.
2) Connect frequency counter to emitter of Q034, and adjust with RV006 so that the reading on frequwncy counter goes 3.80 ± 0.05 MHz.
3) Feed the color bar signal and record it.
4) Playback the recorded signal and sheck the signal at VIDEO LINE OUT goes 1.00 ± 0.02 Vp-p with oscilloscope.
5) When it is out of order, adjustment it with RV005.
6) Repeat items 4) and 5) fill the specification is satisfied.

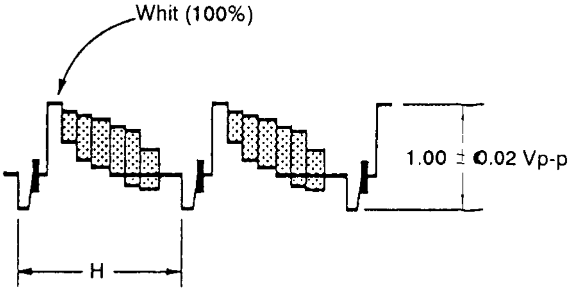


Fig.7-2-10

2-3-7. VCO Adjustment (RV-34 Board)

Purpose:

Adjust to lock the color surely.
When it is out of order, the picture doesn't colored.

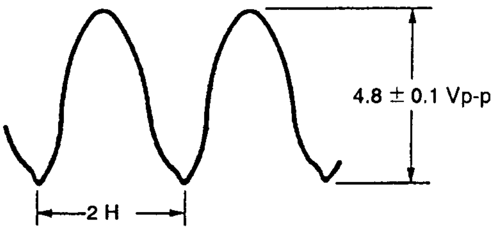
Mode	PB
Signal	Color bar
Measurement Point	Pin (55) of IC001
Measuring Instrument	Digital voltmeter
Adjusting Element	T001
Specified Value	2.5 ± 0.1 Vdc

2-3-8. SECAM Discrimination Adjustment (RV-34 Board)

Mode	E-E
Signal	SECAM Color bar
Measurement Point	Pin ⑪ of IC201
Measuring Instrument	oscilloscope
Adjusting Element	RV201
Specified Value	4.8 ± 0.1 Vp-p

Adjusting Method:

1) Adjust RV201 so that the amplitude of 1/2 fh waveform becames 4.8 ± 0.1 Vp-p.



2-3-9. CCD Video Level Adjustment (SK-44 Board)

Mode	E-E
Signal	NTSC Color bar
Measurement Point	Pin ② of IC301
Measuring Instrument	Oscilloscope
Adjusting Element	RV301
Specified Value	2.00 ± 0.05 Vp-p

Adjusting Method:

1) With RV301, adjust the video signal level to 2.00± 0.05 Vp-p.

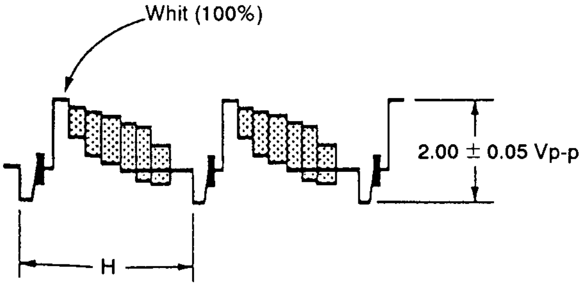

Whit (100%)
2.00 ± 0.05 Vp-p
H

Fig. 7-2-12.

2-4. AUDIO SYSTEM ADJUSTMENTS

- Adjust both Lch and Rch.

[Connection]

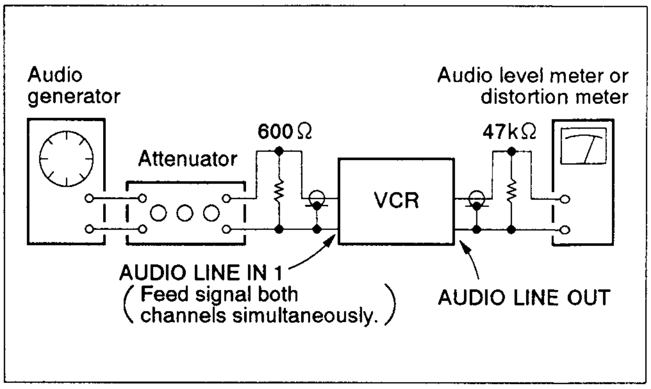

Audio generator
Audio level meter or distortion meter
600 Ω
47kΩ
Attenuator
VCR
AUDIO LINE IN 1
(Feed signal both channels simultaneously.)
AUDIO LINE OUT

Fig. 7-2-13.

2-4-1. Hi-Fi Audio System Adjustment

- Set switches and knobs to the following positions to make adjustment unless otherwise specified.
  INPUT SELECT switch ·········· LINE 1
  AUDIO MONITOR ················· STEREO

[Adjusting Sequence]

1. VCO fo adjustment
2. BPF fo adjustment
3. AF switching position

1. VCO f0 Adjustment (HF-34 Board)

Purpose:

Adjust to have interchangeability in HiFi audio.
When it is out of order, the sound is distorted.

[NTSC mode]

Mode	REC
Signal	No signal
Measuring Instrument	Frequency counter
1.3 MHz Adjustment	
Measurement Point	Pin ⑲ of IC101
Adjusting Element	RV103 (R CH)
Specified Value	1.3 MHz ± 1 kHz
1.7 MHz Adjustment	
Measurement Point	Pin ㉚ of IC101
Adjusting Element	RV102 (R CH)
Specified Value	1.7 MHz ± 1 kHz

[PAL mode]

Mode	REC
Signal	No signal
Measuring Instrument	Frequency counter
1.4 MHz Adjustment	
Measurement Point	Pin ⑲ of IC101
Adjusting Element	RV105 (R CH)
Specified Value	1.4 MHz ± 1 kHz
1.8 MHz Adjustment	
Measurement Point	Pin ㉚ of IC101
Adjusting Element	RV104 (R CH)
Specified Value	1.8 MHz ± 1 kHz

Note: Connect the frequency counter through a probe of high input impedance (more than 1 MΩ) and low capacity (10 pF or less).

Adjusting Method:

1) Connect the frequency counter to each measurement point.
2) Adjust each volume so that each frequency meets its specified value.

2. BPF f0 Adjustment (HF-34 Board)

Purpose:

Adjust to separate carrier component precisely and to operate normally the filter for cutting video signal.
When it is out of order, the sound is distorted.

Mode	PB
Signal	1.608 MHz Input 200 mVp-p : Pin ① of CN103
Measurement Point	Pin ⑲ of IC101 Pin ㉚ of IC101
Measuring Instrument	Oscilloscope
Adjusting Element	RV101

Connection:

1) Remove HF-34 board from CN103, and feed 1.608 MHz, 200 mVp-p sine wave to Pin ① of CN103.

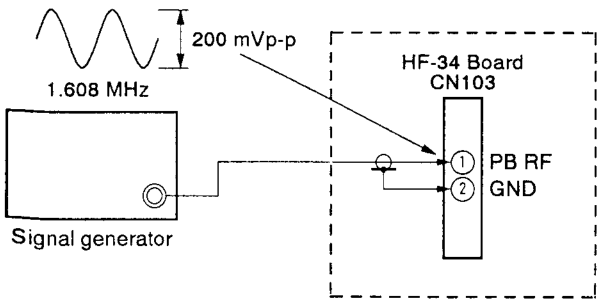


Fig. 7-2-14.

Adjusting method:

1) Turn RV101 counterclockwise seen from the component side.
2) Turn RV101 clockwise gradually and stop turning when the level Ⓐ becomes equal to the level Ⓑ.

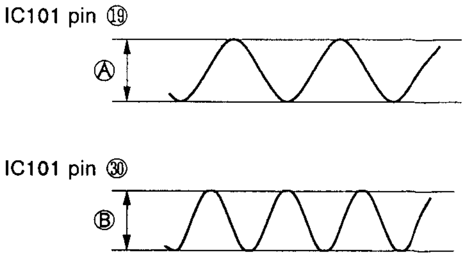
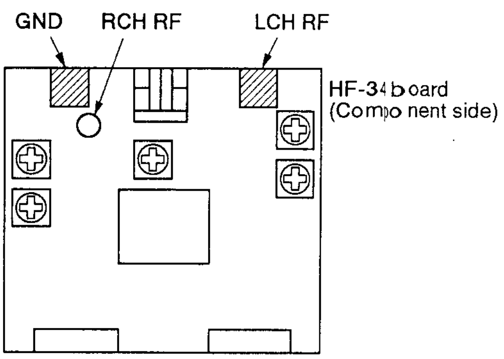


Fig. 7-2-15.

3. AF Switching Position Adjustment (MA-202 Board)

Adjust the interval between A CH and B CH of tape playback output. Improve the interchangeability with other tapes and sets. When it is out of order, noisy sound is increased and big noise is heard.

Mode	PB
Signal	Alignment tape
Measurement Point	CH1: See Fig. 7-2-16 (HF-34 Board) CH2: Pin ③ of CN802 (RV-34 Board)
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	Fig. 7-2-17

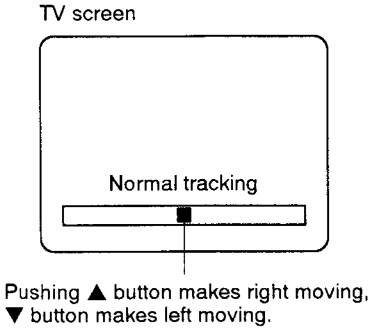


Measure between the big land and the small land near the both sides of CN103 on the component side of HF-34 board.

Fig. 7-2-16.

Adjusting method:

1) Adjust the tracking position to the center by pushing tracking buttons ▲, ▼ (on remote commander). (Auto tracking: OFF)
2) Adjust RV201 to minimize dropout.


TV screen
Normal tracking
Pushing ▲ button makes right moving,
▼ button makes left moving.

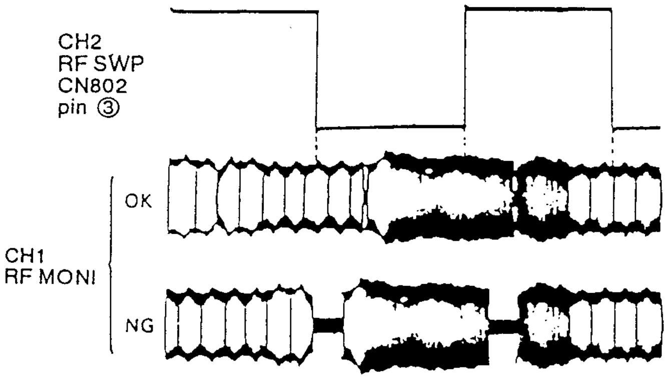


Fig. 7-2-17.

2-4-2. Normal Audio System Adjustment

- Make adjustment in the SP mode, unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

1. ACE Head Adjustment

Refer to the service manual of VHS MECHANICAL ADJUSTMENT Ⅱ.

2. Recording Bias Adjustment (MA-202 Board)

Mode	REC and PB
Signal	400 Hz, − 30 dBs 7 kHz, − 60 dBs
Measurement Point	AUDIO LINE OUT L or R
Measuring Instrument	Audio level meter
Adjusting Element	RV851
Specified Value	0 ± 1 dB

Adjusting Method :

1) Supply a signal of 400Hz, − 30 dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate − 30 dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7 kHz and make recording.
6) Playback a recorded portion, and mesure output levels at 400 Hz and 7 kHz.
7) Confirm that the 7 kHz playback output levels within a range of the 400 Hz playback output level 0 ± 1 dB. When beyond this range, sdjust RV851 and repeat the steps 1) through 7) above.

2-5. TUNER SYSTEM ADJUSTMENT

2-5-1. Receive Separation Adjustment (TU-150 Board) (SLV-836EE/K881/X831)

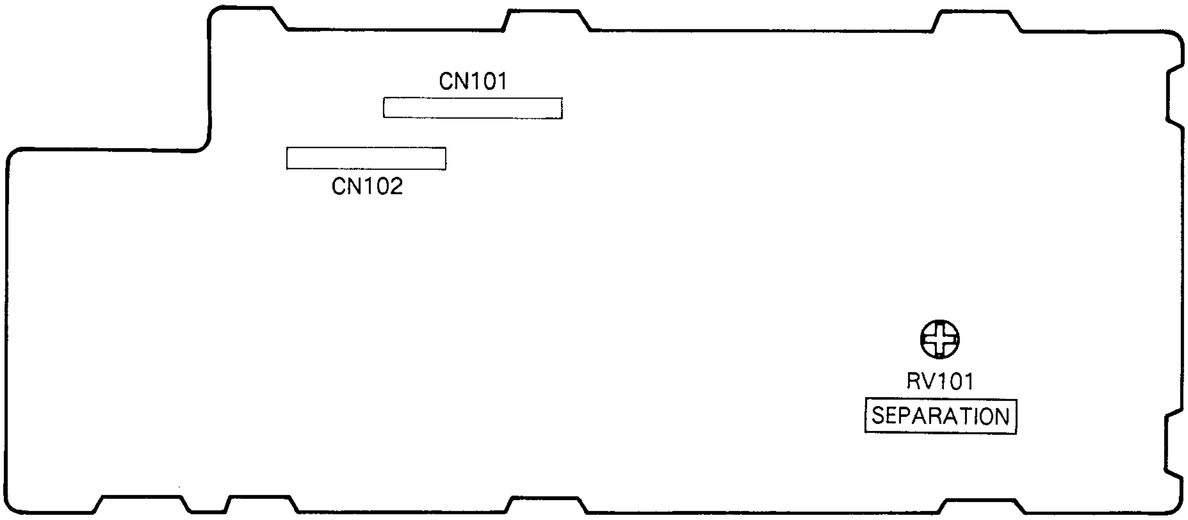
Signal	Stereo Lch: No modulation Rch: 1 kHz Modulation: 100%
Connection Point	AUDIO LINE OUT L
Measuring Instrument	Oscilloscope
Adjusting Element	RV101

Adjusting method:

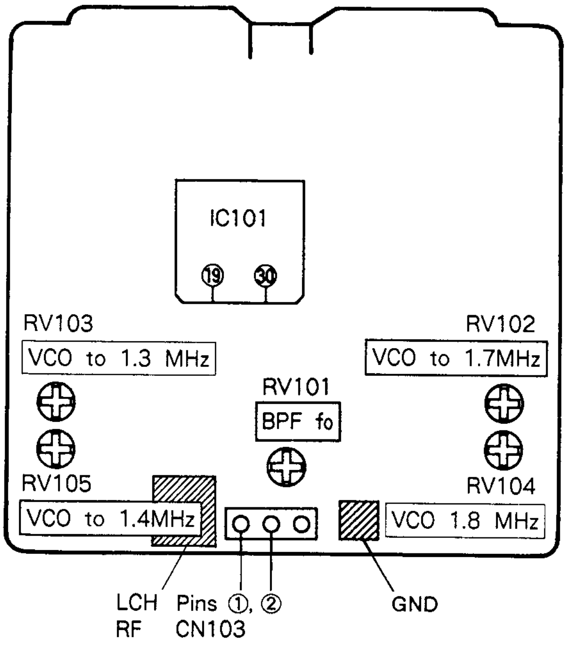
1) Set the sound multiplex signal generator in the Stereo mode, and set Lch to 400 Hz and Rch to 1 kHz, 100% modulation.
2) Connect the oscilloscope to the Lch of Audio Line Output.
3) Adjust RV101 to minimize Rch (1 kHz) output.
   When this is done, do not fully turn RV101.
   (The "STEREO" indication must be illuminated.)

2-6. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

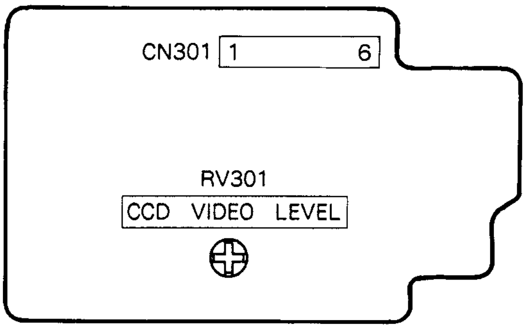
TU-150 BOARD (CONDUCTOR SIDE)


CN101
CN102
RV101
SEPARATION

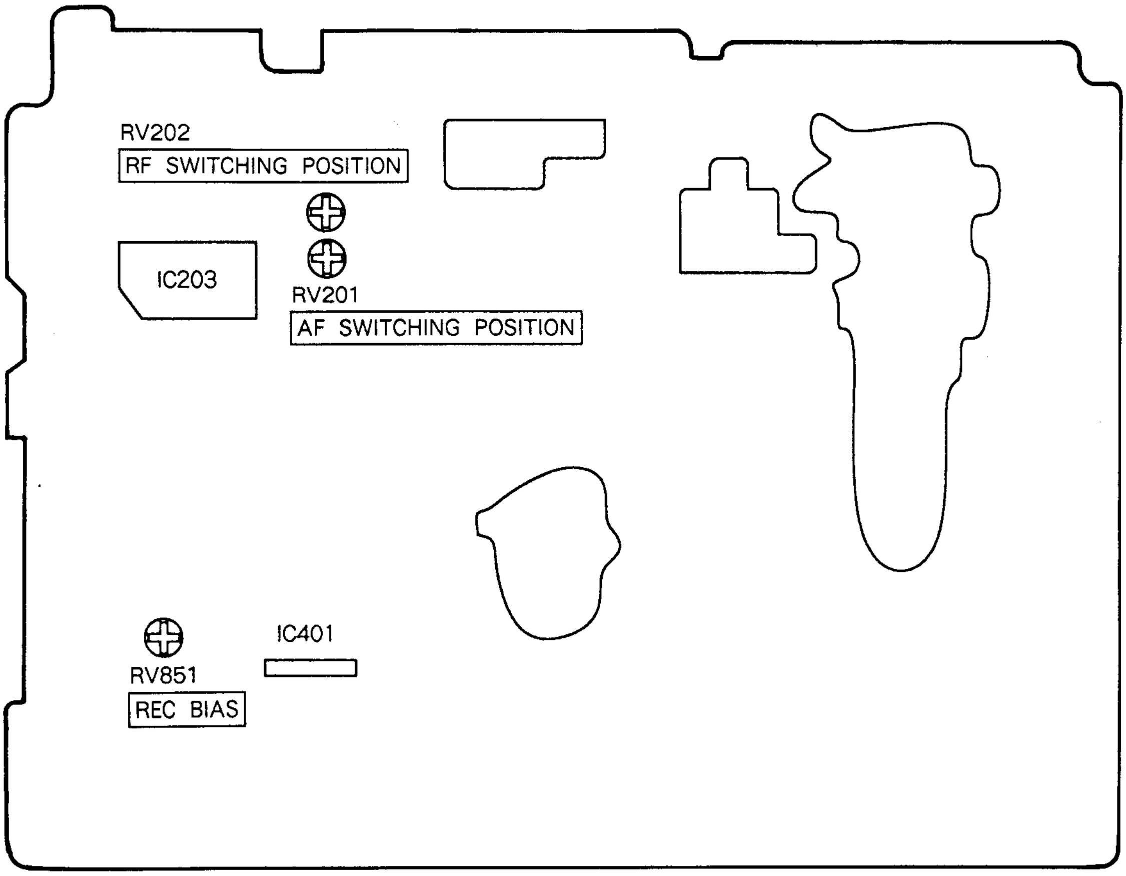
HF-34 BOARD (COMPONENT SIDE)


IC101
⑲
㉚
RV103
VCO to 1.3 MHz
RV102
VCO to 1.7MHz
RV101
BPF fo
RV105
VCO to 1.4MHz
RV104
VCO 1.8 MHz
LCH
RF
Pins ①, ②
CN103
GND

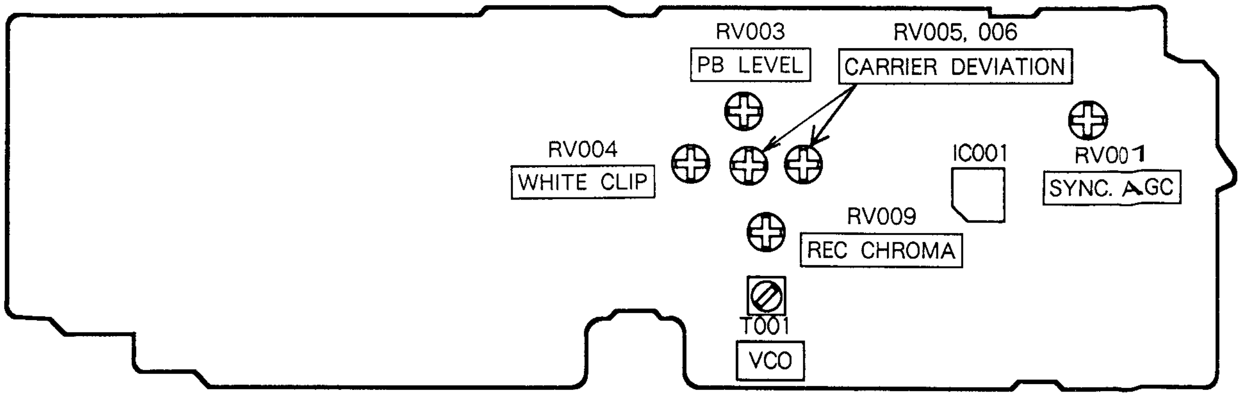
SK-44 BOARD (COMPONENT SIDE)


CN301
1
6
RV301
CCD VIDEO LEVEL

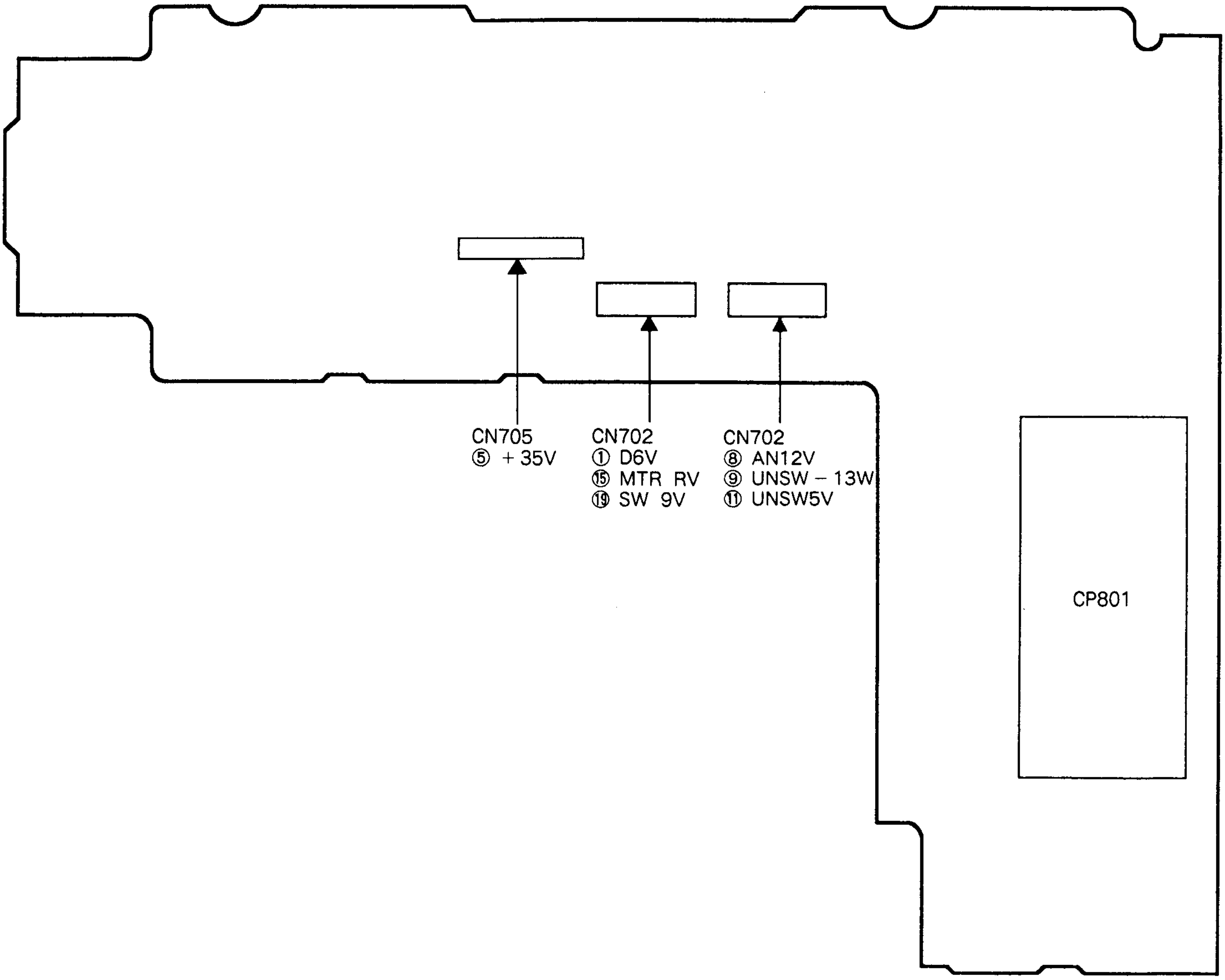
MA-202 BOARD (CONDUCTOR SIDE)


RV202
RF SWITCHING POSITION
IC203
RV201
AF SWITCHING POSITION
IC401
RV851
REC BIAS

RV-34 BOARD (COMPONENT SIDE)


RV003
PB LEVEL
RV005, 006
CARRIER DEVIATION
RV004
WHITE CLIP
IC001
RV001
SYNC. AGC
RV009
REC CHROMA
T001
VCO

PT-97 BOARD (CONDUCTOR SIDE)


CN705
⑤ +35V
CN702
① D6V
⑮ MTR RV
⑲ SW 9V
CN702
⑧ AN12V
⑨ UNSW - 13W
⑪ UNSW5V
CP801